SOIL SURVEY

Chickasaw County Mississippi

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
and
Forest Service
In cooperation with
MISSISSIPPI AGRICULTURAL AND FORESTRY EXPERIMENT STATION
Issued March 1974

Major fieldwork for this soil survey was done in the period 1960 through 1968. Soil names and descriptions were approved in 1970. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1969. This survey was made cooperatively by the Soil Conservation Service and Forest Service, and the Mississippi Agricultural and Forestry Experiment Station. It is part of the technical assistance furnished to the Chickasaw County Soil Conservation District, which was organized in April 1946.

Either enlarged or reduced copies of the soil map in this publication can be made by commercial photographers, or they can be purchased, on individual order, from the Cartographic Division, Soil Conservation Service, USDA, Washington, D.C. 20250.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms and woodlands; in selecting sites for roads, ponds, buildings, or other structures; and in judging the suitability of tracts of land for farming, industry, or recreation.

Locating Soils

All of the soils of Chickasaw County are shown on the detailed map at the back of this survey. This map consists of many sheets that are made from aerial photographs. Each sheet is numbered to correspond with a number shown on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by symbols. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information in the survey. This guide lists all of the soils of the county in alphabetic order by map symbol. It shows the page where each soil is described and gives the capability unit and the woodland suitability group in which the soil has been placed.

Individual colored maps showing the relative suitability or degree of limitation of soils for many specific purposes can be developed by using the soil map and information in the text. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils in the soil descriptions and in the section "Management for Crops and Tame Pastures."

Foresters and others can refer to the section "Use of the Soils as Woodland," where the soils of the county are grouped according to their suitability for trees.

Game managers, sportsmen, and others concerned with wildlife will find information about soils and wildlife in the section "Use of the Soils for Wildlife."

Community planners and others concerned with community development can read about soil properties that affect the choice of sites for nonindustrial and for recreation areas in the section "Use of the Soils for Town and Country Planning."

Engineers and builders will find, under "Engineering Uses of the Soils," tables that contain test data, estimates of soil properties, and information about soil features that affect engineering practices.

Scientists and others can read about how the soils were formed and how they are classified in the section "Formation and Classification of the Soils."

Newcomers to Chickasaw County may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the information about the county given in the section "General Nature of the County," and at the beginning of the publication.

U.S. GOVERNMENT PRINTING OFFICE: 1974

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

Contents

Issued March 1974

SOIL SURVEY OF CHICKASAW COUNTY, MISSISSIPPI

BY L. C. MURPHREE, J. S. HUDDLESTON, AND L. H. NICHOLS, SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE AND FOREST SERVICE, IN COOPERATION WITH THE MISSISSIPPI AGRICULTURAL AND FORESTRY EXPERIMENT STATION

CHICKASAW COUNTY is in the northeastern part of Mississippi (fig. 1). Houston and Okolona are the county seats. The county is almost square except for the southwest corner; it is about 23 miles from north to south and about 24 miles from east to west, and it has a land area of about 506 square miles, or 323,840 acres.

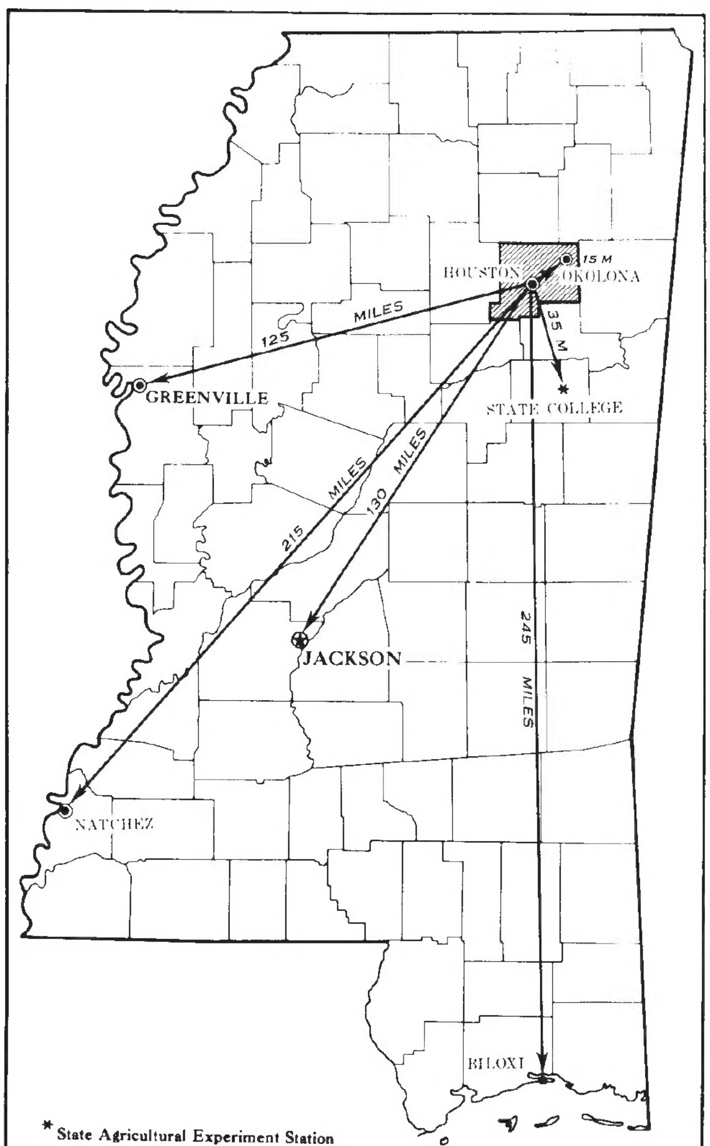


Figure 1.—Location of Chickasaw County in Mississippi.

Chickasaw County has a warm, humid climate and abundant rainfall. Winter and spring are the wettest seasons, and fall is the driest. The average yearly rainfall is about 52 inches.

Farming is the main enterprise. The chief crops are cotton, corn, soybeans, sweetpotatoes, and hay. Forest products are important as a secondary source of income. Deep and shallow wells furnish water for household use, and perennial streams, springs, and ponds furnish most of the water needed by livestock.

Chuquatonchee Creek essentially separates the clayey soils of the prairie in the eastern part of the county from the sandy soils of the Coastal Plain in the western part.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soil are in Chickasaw County, where they are located, and how they can be used. The soil scientists went into the county knowing they likely would find many soils they had already seen and perhaps some they had not. They observed the steepness, length, and shape of slopes, the size and speed of streams, the kinds of native plants or crops, the kinds of rock, and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by the action of plant roots.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. The *soil series* and the *soil phase* are the categories of soil classification most used in a local survey (*11*).[1]

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similiar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Okolona and Brooksville, for example, are the names of two soil series. All the soils

[1] Italic numbers in parentheses refer to Literature Cited, p. 66.

in the United States having the same series name are essentially alike in those characteristics that affect their behavior in the undisturbed landscape.

Soils of one series can differ in texture of the surface layer and in slope, stoniness, or some other characteristic that affects use of the soils by man. On the basis of such differences, a soil series is divided into phases. The name of a soil phase indicates a feature that affects management. For example, Atwood silt loam, 2 to 5 percent slopes, is one of several phases within the Atwood series.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map in the back of this publication was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning the management of farms and fields, a mapping unit is nearly equivalent to a soil phase. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil phase.

Some mapping units are made up of soils of different series or of different phases within one series. Two such kinds of mapping units are shown on the soil map of Chickasaw County: soil complexes and undifferentiated groups.

A soil complex consists of areas of two or more soils, so intermingled or so small in size that they cannot be shown separately on the soil map. Each area of a complex contains some of each of the two or more dominant soils, and the pattern and relative proportions are about the same in all areas. The name of a soil complex consists of the names of the dominant soils joined by a hyphen. An example is Demopolis-Kipling complex, 8 to 25 percent slopes, severely eroded.

An undifferentiated group is made up of two or more soils that could be delineated individually but are shown as one unit because, for the purpose of the soil survey, there is little value in separating them. The pattern and proportion of soils are not uniform. An area shown on the map may be made up of only one of the dominant soils, or of two or more. The name of an undifferentiated group consists of the names of the dominant soils, joined by "and." Robinsonville and Marietta soils is an example.

In most areas surveyed there are places where the soil material is so rocky, so shallow, or so severely eroded that it cannot be classified by soil series. These places are shown on the soil map and are described in the survey, but they are called land types and are given descriptive names. Gullied land is a land type in Chickasaw County.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soil in other places are assembled. Data on yields of crops under undefined practices are assembled from farm records and from field or plot experiments on the same kinds of soil. Yields under defined management are estimated for all the soils.

But only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information that needs to be organized in such a way as to be readily useful to different groups of readers, among them farmers, managers of woodland, and engineers.

On the basis of yield and practice tables and other data, the soil scientists set up trial groups. They test these groups by further study and by consultation with farmers, agronomists, engineers, and others. Then, the scientists adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

General Soil Map

The general soil map at the back of this survey shows, in color, the soil associations in the Chickasaw County. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to know the location of large tracts that are suitable for a certain kind of land use. Such a map is a useful general guide in managing a watershed, a wooded tract, or a wildlife area, or in planning engineering works, recreational facilities, and community developments. It is not a suitable map for planning the management of a farm or field, or for selecting the exact location of a road, building, or similar structure, because the soils in any one association ordinarily differ in slope, depth, stoniness, drainage, and other characteristics that affect their management.

The eight soil associations in Chickasaw County are discussed in the following pages. Soil associations and delineations on the general soil map in this soil survey do not fully agree with those of the general soil maps in adjacent counties published at a different date. Soil association delineations for Chickasaw County match at the common boundary with those for Lee and for Pontotoc Counties. They do not match those for Calhoun and Monroe Counties, because of technical revisions in series concepts that have occurred since 1966. Differences in the maps are the result of improvements in the classification of soils, particularly in the modifications or refinements in soil series concepts.

1. Ora-Prentiss-Brewton association

Moderately well drained and somewhat poorly drained, level to sloping soils that have a loamy subsoil and a fragipan; on uplands

This association is on ridgetops and side slopes. It is mainly in the northeastern and south-central parts of the county. Slopes range from 0 to 12 percent.

This association makes up about 10 percent of the county. It is about 40 percent Ora soils, 30 percent Prentiss

soils, and 20 percent Brewton soils. The remaining 10 percent is minor soils.

Ora soils are gently sloping to sloping and moderately well drained. They have a surface layer of dark yellowish-brown loam about 4 inches thick. The upper part of the subsoil, to a depth of about 10 inches, is dark-brown loam, and below this, to a depth of about 27 inches, is yellowish-red loam. The lower part, to a depth of about 34 inches, is dark yellowish-brown compact, brittle loam and below this, to a depth of more than 54 inches, is compact, brittle sandy loam mottled with brown.

Prentiss soils are level to gently sloping and moderately well drained. They have a surface layer of dark grayish-brown fine sandy loam about 8 inches thick. The upper part of the subsoil, to a depth of about 18 inches, is yellowish-brown fine sandy loam and below this, to a depth of about 30 inches, is yellowish-brown loam. The lower part, to a depth of about 45 inches, is yellowish-brown, brittle, compact loam mottled with very pale brown and below this, to a depth of more than 60 inches, is loam mottled with brown.

Brewton soils are level and are somewhat poorly drained. They have a surface layer of brown or light yellowish-brown loam about 12 inches thick. The upper part of the subsoil is light yellowish-brown loam that is mottled with light brownish gray and extends to a depth of about 22 inches. The lower part of the subsoil is mottled gray and yellowish-brown, compact, brittle loam that extends to a depth of about 72 inches. The underlying material is yellowish-brown loam that is mottled with gray. It extends to a depth of 78 inches or more.

The minor soils are of the Marietta, Mashulaville, and Rosebloom series.

Most of this association has been cleared and is used for row crops, but many of the poorly drained areas are used for pasture. The main crops are cotton, corn, and soybeans. If adequately fertilized, the soils are suited to these crops.

The average size of farms is 150 acres. Many farmers obtain a large part of their income from work off the farm.

2. Leeper-Belden-Una association

Somewhat poorly drained and poorly drained, level soils that have a clayey and loamy subsoil; on flood plains, mainly in the eastern part of the county.

This soil association is on flood plains. It is mainly in the eastern part of the county.

This association makes up about 10 percent of the county. It is about 45 percent Leeper soils, 30 percent Belden soils, and 5 percent Una soils. The remaining 20 percent is soils of minor extent.

Leeper soils have a surface layer of dark grayish-brown silty clay loam about 7 inches thick. The upper part of the subsoil, to a depth of about 20 inches, is dark grayish-brown silty clay. The lower part of the subsoil is dark grayish-brown and olive-gray clay mottled with yellowish brown.

Belden soils have a surface layer of dark grayish-brown silty clay loam that is about 8 inches thick and mottled with grayish brown. The subsoil is grayish-brown clay loam or silty clay loam mottled with yellowish brown and brown.

Una soils occupy depressions in the flood plains, and they are poorly drained. Typically, they have a surface layer of dark grayish-brown silty clay loam about 4 inches thick. The upper part of the subsoil is about 9 inches of light brownish-gray silty clay loam mottled with yellowish red. The lower part is gray silty clay loam and silty clay mottled with strong brown.

The minor soils are of the Catalpa, Marietta, and Robinsonville series.

Most of this association is made up of farms that average 300 acres in size. Most of it has been cleared and is used for row crops. If adequately drained and fertilized, Leeper and Belden soils are suited to cotton, corn, and soybeans. Flooding is a potential hazard on these two soils, and drainage ditches are needed in low areas. Una soils are used mainly for pasture, hay, and soybeans.

3. Kipling-Brooksville-Okolona association

Somewhat poorly drained and well-drained, level to sloping soils that are clayey below the surface layer; on uplands

This association is on broad flats and short side slopes. It has a well-established stream pattern of creeks and drainageways and fairly wide flood plains.

This association makes up about 15 percent of the county. It is about 70 percent Kipling soils, 15 percent Brooksville soils, and 8 percent Okolona soils. The rest is minor soils of the Demopolis, Ora, and Prentiss series.

Kipling soils are level to sloping and are on broad ridgetops and side slopes. They are somewhat poorly drained. Typically, they have a surface layer of dark-brown silt loam about 4 inches thick. The upper part of the subsoil, to a depth of about 20 inches, is brown silty clay that is mottled with gray and pale brown in the upper part and in shades of brown, gray, and yellow in the lower part. The lower part of the subsoil, to a depth of about 52 inches, is clay that is mottled in shades of gray, brown, and olive. Below this is chalk.

Brooksville soils are level to gently sloping and are on broad ridgetops. They are somewhat poorly drained. The surface layer is about 24 inches thick. The upper 6 inches is very dark grayish-brown silty clay, the next 10 inches is very dark grayish-brown silty clay mottled with yellowish red, and the lower 8 inches is very dark grayish-brown silty clay mottled with red. The next layer, below a depth of 24 inches, is dark grayish-brown silty clay mottled in shades of brown and red. Below a depth of 50 inches is light olive-brown silty clay mottled in shades of brown and gray.

Okolona soils are level to gently sloping and are on broad ridgetops. They are well drained. The surface layer is very dark gray clay about 8 inches thick. Below this, and extending to a depth of 16 inches, is very dark grayish-brown silty clay. The next layer, extending to a depth of 25 inches, is olive-brown silty clay. Below this, to a depth of 34 inches, is a transitional layer of light olive-brown clay. The underlying material is light brownish-gray clay mottled in shades of yellow. The underlying bedrock is chalk.

Most of this association is made up of farms that average more than 300 acres in size. Most of it has been cleared and is used for row crops. The main crops are cotton, corn, and soybeans. If adequately managed and fertilized,

Brooksville and Okolona soils are suited to these crops, and Kipling soils are moderately well suited. Much of the steeper acreage of Kipling soils is used for pasture.

4. Cahaba-Atwood-Ora association

Well drained and moderately well drained, level to steep soils that have a loamy subsoil; on uplands

This association is on broad and narrow ridgetops and on moderately steep and steep side slopes in the north-central part of the county. In some areas between the ridgetops and narrow stream bottoms, side slopes are more than 17 percent. The stream bottoms are normally less than one-fourth mile wide.

This association makes up about 15 percent of the county. It is about 45 percent Cahaba soils, 17 percent Atwood soils, and 14 percent Ora soils. The remaining 24 percent is soils of minor extent.

Cahaba soils are moderately steep to steep. They are well drained. Typically, they have a surface layer of yellowish-brown fine sandy loam about 6 inches thick. The subsoil is yellowish-red sandy clay loam to a depth of about 39 inches, and below this is yellowish-red sandy loam.

Atwood soils are level to moderately steep and occupy the narrow ridgetops and upper side slopes. They are well drained. Typically, they have a surface layer of yellowish-brown silt loam about 5 inches thick. The subsoil is red or reddish-brown silty clay loam.

Ora soils are gently sloping to sloping. They are moderately well drained. The surface layer is dark yellowish-brown loam about 4 inches thick. The upper part of the subsoil, to a depth of about 10 inches, is dark-brown loam and to a depth of about 27 inches is yellowish-red loam. Below this, to a depth of about 34 inches, is dark yellowish-brown loam that is compact and brittle. The lower part of the subsoil is compact, brittle sandy loam that is mottled with shades of brown and extends to a depth of more than 54 inches.

The minor soils are of the Brewton, Mashulaville, and Prentiss series.

Most farms are about 150 to 300 acres in size. The soils on ridgetops and stream bottoms are used for row crops, mainly cotton, corn, and soybeans. Most of the moderately steep and steep soils on side slopes have never been cleared. The soils on ridgetops and stream bottoms are suited to row crops. Erosion is a hazard, however, where the soils are on ridgetops. Overflow is a hazard where the soils are on bottoms along streams.

5. Adaton-Falkner-Mayhew association

Poorly drained and somewhat poorly drained, level soils that have a loamy and clayey subsoil; on uplands

This association is on uplands in the western part of the county.

This association makes up about 20 percent of the county. It is about 40 percent Adaton soils, 30 percent Falkner soils, and 20 percent Mayhew soils. The remaining 10 percent is soils of minor extent.

Adaton soils are level and poorly drained. Typically, the surface layer is pale-brown silt loam about 6 inches thick. The subsoil is light brownish gray to a depth of about 13 inches. Below this it is light brownish-gray loam mottled with light yellowish brown.

Falkner soils are level and somewhat poorly drained. Typically, the surface layer is silt loam about 5 inches thick. The upper part of the subsoil is yellowish-brown silty clay loam that is mottled beginning at a depth of 14 inches. The lower part of the subsoil is gray silty clay mottled with shades of red and brown or gray and brown.

Mayhew soils are level. The surface layer is very dark gray silt loam about 4 inches thick. The upper part of the subsoil is light brownish-gray silty clay loam that extends to a depth of about 10 inches. The lower part of the subsoil is light brownish-gray to light olive-gray silty clay.

The minor soils are of the Rosebloom, Tippah, and Wilcox series.

Much of this association has been cleared and is used for row crops and pasture. Sweetpotatoes, soybeans, cotton, and corn are the main crops. If adequately drained and fertilized, Adaton and Falkner soils are suited to these crops. Mayhew soils are suited to soybeans and sweetpotatoes, but surface drainage is needed. Soils of this association are generally well suited to pines and hardwoods. The farms average about 150 acres in size, and many farmers obtain a large part of their income from work off the farm.

6. Arkabutla-Marietta association

Somewhat poorly drained and moderately well drained, level soils that have a loamy subsoil; on flood plains

This association occurs on flood plains along creeks in the central and western parts of the county.

This association makes up about 10 percent of the county. It is about 45 percent Arkabutla soils, 40 percent Marietta soils, and 15 percent minor soils.

Arkabutla soils are level and somewhat poorly drained. Typically, they have a surface layer of dark grayish-brown silt loam about 8 inches thick. The subsoil is dark grayish-brown silt loam mottled with light brownish gray and dark yellowish brown.

Marietta soils are level and moderately well drained. The surface layer is dark yellowish-brown fine sandy loam about 7 inches thick. The upper part of the subsoil is dark yellowish-brown loam to a depth of about 16 inches, and below this, to a depth of about 32 inches, is brown loam mottled with grayish brown. The lower part is loam mottled with shades of red and brown.

The minor soils are of the Rosebloom, Trebloc, and Urbo series.

Most of this association has been cleared and is used for row crops. The size of most farms is 100 to 150 acres. The main crops are cotton, corn, and soybeans. These crops and oats are well suited if these soils are adequately drained and fertilized. Damage to crops by flooding on some flood plains is a potential hazard, and drainage ditches are needed in many low areas. Most of the poorly drained areas are used for pasture and trees.

7. Wilcox-Sweatman-Tippah association

Well-drained to somewhat poorly drained, gently sloping to steep soils that have a clayey and loamy subsoil; on uplands

This association is on uplands in the southwestern corner of the county. The gently sloping and sloping soils are on ridgetops, many of which are less than one-eighth

mile wide. The moderately steep and steep soils are on side slopes.

This association makes up about 15 percent of the county. It is about 30 percent Wilcox soils, 22 percent Sweatman soils, 15 percent Tippah soils, and 33 percent minor soils.

Wilcox soils are gently sloping to moderately steep and are somewhat poorly drained. They are on narrow ridgetops and upper side slopes. Typically, they have a surface layer of very dark gray silt loam about 4 inches thick. The upper part of the subsoil is reddish-brown silty clay mottled with gray. It extends to a depth of about 19 inches. The lower part of the subsoil is gray clay mottled with red and strong brown.

Sweatman soils are sloping to steep and are on side slopes. They are well drained. The surface layer is dark grayish-brown loam about 6 inches thick. The upper part of the subsoil, to a depth of about 29 inches, is yellowish-red silty clay, and the lower part, which reaches to a depth of about 37 inches, is strong-brown silty clay mottled with red and light gray. The underlying material is stratified layers of grayish-brown weathered shale and light yellowish-brown fine sandy loam.

Tippah soils are gently sloping to sloping and are on narrow ridgetops and short side slopes. Typically, the surface layer consists of about 5 inches of dark grayish-brown silt loam. The upper part of the subsoil is yellowish-red to strong-brown silty clay loam that extends to a depth of 32 inches. The lower part of the subsoil is yellowish-brown silty clay that has light brownish-gray mottles in the upper part and mottles in shades of brown and gray in the lower part.

The minor soils are of the Arkabutla, Cahaba, and Rosebloom series. Some of these soils are on narrow flood plains.

Most of this association is made up of tree farms that are about 300 acres in size. Some of the larger areas on the ridgetops and flood plains are in row crops, mainly soybeans and cotton. Many of the soils on side slopes have never been cleared. This association is generally well suited to pines and hardwoods. On only a few of the ridgetops and stream bottoms are the soils suited to crops. Erosion is a hazard on the ridgetops, and overflow is a hazard on the flood plains.

8. *Urbo-Rosebloom association*

Somewhat poorly drained and poorly drained, level soils that have a clayey and loamy subsoil; on flood plains in the northwestern part of the county

This soil association is on flood plains in the northwestern part of the county.

This association makes up about 5 percent of the county. It is about 40 percent Urbo soils and 35 percent of Rosebloom soils. The remaining 25 percent is soils of minor extent.

Urbo soils are level and somewhat poorly drained. Typically, they have a surface layer of dark-brown silty clay about 9 inches thick. The upper part of the subsoil, to a depth of 16 inches, is grayish-brown silty clay mottled with dark grayish brown. The lower part of the subsoil is silty clay loam that is grayish brown in a layer immediately below the silty clay, but at increased depths it is mottled with shades of brown.

Rosebloom soils are in depressions of the flood plains. They are poorly drained. They have a surface layer of grayish-brown silt loam about 6 inches thick. The upper part of the subsoil, to a depth of about 17 inches, is light brownish-gray silt loam. The lower part is gray silt loam mottled with yellowish brown.

The minor soils are of the Adaton and Falkner series.

Most of this association is made up of farms that average about 300 acres in size. Most of it has been cleared and is used for row crops. The main crops are cotton, corn, and soybeans. If adequately drained and fertilized, Urbo soils are suited to these crops. Rosebloom soils are suited to soybeans and moderately well suited to corn. Flooding is a hazard on these soils, and drainage ditches are needed. Many of the poorly drained areas are used for pasture.

Descriptions of the Soils

In this section the soils of Chickasaw County are described in detail. The procedure is to describe first the soil series and then the mapping units, or kinds of soil, in that series. Thus, to get full information on any one mapping unit, it is necessary to read both the description of that unit and the description of the soil series to which the unit belongs.

Each soil series description contains a short narrative description of a profile considered representative of the series, and a much more detailed description of the same profile that scientists, engineers, and others can use in making technical interpretations. The colors described are for a moist soil, unless otherwise noted.

Following the name of each mapping unit is a symbol in parentheses. This symbol identifies the mapping unit on the detailed soil map at the back of this survey. Listed at the end of the description of each mapping unit are the capability unit and woodland suitability group in which the mapping unit has been placed. The acreage and the proportionate extent of the mapping units are shown in table 1. The page on which each mapping unit is described can be found readily by referring to the "Guide to Mapping Units" at the back of this survey. Many terms used in soil descriptions and in other parts of the survey are defined in the Glossary.

Adaton Series

The Adaton series consists of poorly drained soils. These soils formed in medium-textured to moderately fine textured material. Slopes are 0 to 3 percent.

In a representative profile the surface layer is pale-brown silt loam about 6 inches thick. The subsoil is light brownish-gray silt loam to a depth of about 13 inches. Below this, to a depth of 60 inches or more, is light brownish-gray silty clay loam mottled with light yellowish brown.

Representative profile of Adaton silt loam, in a 40-acre tract used for pasture, 2½ miles west of junction of State Highways No. 15 and 32, SW¼ sec. 6, T. 13 S, R. 3 E.

Ap—0 to 6 inches, pale-brown (10YR 6/3) silt loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary.

B1—6 to 13 inches, light brownish-gray (10YR 6/2) silt loam; moderate, fine and medium, subangular blocky structure; friable; few fine roots; strongly acid; clear, smooth boundary.

TABLE 1.—*Approximate acreage and proportionate extent of the soils*

Soil	Area	Extent	Soil	Area	Extent
	Acres	*Percent*		*Acres*	*Percent*
Adaton silt loam	28, 045	8. 6	Mayhew silt loam	13, 790	4. 3
Arkabutla silt loam	15, 790	4. 9	Okolona clay, 0 to 2 percent slopes	1, 100	. 3
Atwood silt loam, 0 to 2 percent slopes	400	. 1	Okolona clay, 2 to 5 percent slopes	3, 290	1. 0
Atwood silt loam, 2 to 5 percent slopes	3, 225	1. 0	Ora loam, 2 to 5 percent slopes	6, 050	1. 9
Atwood silt loam, 5 to 8 percent slopes, eroded	1, 430	. 4	Ora loam, 5 to 8 percent slopes	3, 290	1. 0
Atwood silt loam, 8 to 17 percent slopes, severely eroded	4, 555	1. 4	Ora loam, 5 to 8 percent slopes, severely eroded	5, 445	1. 7
Belden silty clay loam	10, 230	3. 2	Ora loam, 8 to 12 percent slopes, severely eroded	6, 220	1. 9
Brewton fine sandy loam	8, 445	2. 6	Prentiss fine sandy loam, 0 to 2 percent slopes	1, 600	. 5
Brooksville silty clay, 0 to 2 percent slopes	3, 155	1. 0	Prentiss fine sandy loam, 2 to 5 percent slopes	9, 270	2. 9
Brooksville silty clay, 2 to 5 percent slopes	4, 315	1. 3	Robinsonville and Marietta soils	2, 875	. 9
Cahaba fine sandy loam, 12 to 35 percent slopes	21, 440	6. 6	Rosebloom fine sandy loam, sandy variant	390	. 1
Catalpa silty clay loam	5, 440	1. 7	Rosebloom silt loam	5, 475	1. 7
Demopolis silty clay loam, 2 to 8 percent slopes, severely eroded	5, 795	1. 8	Ruston fine sandy loam, 2 to 5 percent slopes	505	. 2
Demopolis-Kipling complex, 8 to 25 percent slopes, severely eroded	5, 385	1. 6	Ruston fine sandy loam, 5 to 8 percent slopes, eroded	4, 820	1. 4
Falkner silt loam	20, 690	6. 4	Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded	1, 610	. 5
Gullied land-Demopolis complex, 8 to 25 percent slopes	3, 625	1. 1	Sweatman loam, 8 to 12 percent slopes	3, 170	1. 0
Gullied land-Ruston complex, 5 to 30 percent slopes	2, 740	. 8	Sweatman loam, 12 to 35 percent slopes	7, 465	2. 3
Kipling silt loam, 0 to 2 percent slopes	9, 000	2. 8	Tippah silt loam, 2 to 5 percent slopes	3, 255	1. 0
Kipling silt loam, 2 to 5 percent slopes, eroded	16, 520	5. 1	Tippah silt loam, 5 to 8 percent slopes	4, 100	1. 3
Kipling silt loam, 5 to 8 percent slopes, eroded	2, 850	. 9	Trebloc loam	1, 580	. 5
Kipling silty clay loam, 2 to 5 percent slopes, severely eroded	2, 820	. 9	Una silty clay loam	1, 725	. 5
Kipling silty clay, 5 to 12 percent slopes, severely eroded	5, 710	1. 8	Urbo silty clay	7, 100	2. 2
Leeper silty clay loam	16, 110	5. 0	Wilcox silt loam, 2 to 5 percent slopes	1, 845	. 6
Marietta fine sandy loam	14, 325	4. 4	Wilcox silty clay loam, 5 to 8 percent slopes	5, 440	1. 6
Mashulaville loam	1, 865	. 6	Wilcox silty clay loam, 8 to 17 percent slopes, eroded	8, 525	2. 7
			Total	323, 840	100. 0

B21tg—13 to 33 inches, light brownish-gray (10YR 6/2) silty clay loam; few, fine, faint, light yellowish-brown mottles; moderate, fine and medium, subangular blocky structure; friable, slightly plastic and sticky; few fine roots; few brown concretions; patchy clay films on ped faces; strongly acid; gradual, smooth boundary.

B22tg—33 to 45 inches, light brownish-gray (10YR 6/2) silty clay loam; medium, distinct, light yellowish-brown (10YR 6/4) mottles; moderate, fine and medium, subangular blocky structure; firm, slightly plastic and sticky; few brown concretions; patchy clay films and some coatings of gray silt on ped faces; strongly acid; gradual, smooth boundary.

B23tg—45 to 60 inches, light brownish-gray (2.5Y 6/2) silty clay loam; few, medium, distinct, light yellowish-brown structure; firm, plastic and sticky; few fine manganese concretions; patchy clay films on ped faces; strongly acid.

The Ap horizon ranges from gray to pale brown in color. The B2t horizon is dark gray, gray, or light brownish gray. In the upper 20 inches of the Bt horizon, the content of clay ranges from 20 to 35 percent and the content of silt from 50 to 70 percent. This horizon is silt loam or silty clay loam. In most places the Bt horizon contains fine, soft, brown and black concretions. A coating of gray silt is on the faces of peds in most areas. Except for the surface layer in areas that have been limed, the entire profile is strongly acid or very strongly acid.

Adaton soils are associated with Falkner, Mayhew, Tippah, and Wilcox soils. They are more poorly drained than Falkner soils, and they lack the yellowish-brown color in the B horizon that is typical of the Falkner soils. Adaton soils have drainage similar to that of Mayhew soils, but they have less clay in the upper 20 inches of the B horizon than do the Mayhew soils. They are more poorly drained than Tippah and Wilcox soils, and they lack the yellowish-red color in the B horizon that is typical of the Tippah and Wilcox soils.

Adaton silt loam (Ad).—This soil is on uplands. Included with it in mapping are small areas of Falkner, Mayhew, and Wilcox soils.

Reaction is strongly acid and very strongly acid. The available water capacity is very high. Water moves through the upper part of the subsoil at a medium rate, and it moves slowly through the lower part. Runoff is slow, and the hazard of erosion is slight in cultivated areas.

Tilth is easy to maintain, but the soil crusts and packs if left bare. A plowpan forms if the soil is cultivated at the same depth year after year. Row crops can be grown every year if good management is practiced. Graded rows and surface field ditches are needed to remove excess surface water.

If adequately drained and fertilized, this soil is suited to sweetpotatoes, soybeans, small grain, cotton, and corn. It is also suited to most commonly grown pasture plants, pine trees, and wetland hardwoods. This soil is used mainly for row crops or pasture. (Capability unit IIIw-1; woodland group 3w9)

Arkabutla Series

The Arkabutla series consists of somewhat poorly drained soils on flood plains. These soils formed in medium-textured alluvium. Slopes are 0 to 2 percent.

In a representative profile the surface layer is dark grayish-brown silt loam about 8 inches thick. The subsoil, which reaches to a depth of about 40 inches, is dark grayish-brown silt loam mottled in shades of gray and brown. The underlying material is light brownish-gray silt loam mottled with dark grayish brown.

Representative profile of Arkabutla silt loam, in a large area used for soybeans, one-half mile south of Atlanta on east side of gravel road, NW¼SE¼ sec 12, T. 15 S., R. 1 E.

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; very friable; common fine roots; few, fine, brown concretions; strongly acid; abrupt, smooth boundary.

B21—8 to 21 inches, dark grayish-brown (10YR 4/2) silt loam; many, medium, distinct, light brownish-gray (10YR 6/2) mottles; weak, medium, subangular blocky structure; friable; few, fine, black and brown concretions; strongly acid; clear, smooth boundary.

B22g—21 to 40 inches, dark grayish-brown (10YR 4/2) silt loam; common, medium, distinct, light brownish-gray (10YR 6/2) and dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few black and brown concretions that increase in number with increasing depth; strongly acid; clear, smooth boundary.

Cg—40 to 50 inches, light brownish-gray (10YR 6/2) silt loam; common, medium, distinct, dark grayish-brown (10YR 4/2) mottles; structureless; friable; common black and brown concretions; strongly acid.

The Ap horizon is dark grayish brown, grayish brown, brown, or dark yellowish brown. The B21 horizon is dominantly dark grayish brown, brown, or yellowish brown. The B22 and C horizons are dark grayish brown, grayish brown, or light brownish gray, but some profiles are mottled with light brownish gray and yellowish brown. Texture of the B horizon is silt loam or silty clay loam. This horizon is 20 to 30 percent clay. Few to common, brown and black concretions occur throughout the profile. Reaction of the soil is strongly acid or very strongly acid, except in the surface layer in areas that have been limed.

Arkabutla soils are near Belden, Marietta, Rosebloom, Rosebloom, sandy variant, and Urbo soils. They are more acid in the B horizon than Beldon soils. They are not so well drained as the Marietta soils and contain less sand throughout the profile. They are less clayey in the B horizon than Urbo soils. Arkabutla soils are better drained than the Rosebloom and sandy variant of Rosebloom soils and are not so gray in the upper part of the B2 horizon.

Arkabutla silt loam (Ar).—This soil is on flood plains. Included with it in mapping are small areas of Marietta and Rosebloom soils and small areas of soils that are slightly acid.

Reaction is strongly acid to very strongly acid. The available water capacity is very high. Water moves through the soil at a moderate rate. Runoff is slow, and the hazard of erosion is slight in cultivated areas. Flooding occurs commonly in winter and early in spring but only occasionally during the growing season.

The soil is easy to cultivate throughout a moderate range of moisture content. If it is adequately fertilized and is well managed, it can be cropped year after year. Graded rows and surface field ditches are needed to remove excess surface water (fig. 2).

If adequately drained and fertilized, this soil is well suited to cotton, corn, soybeans, small grain, and pasture plants (fig. 3). Most areas are cultivated or are used for pasture, but a few areas are wooded. (Capability unit IIw-6; woodland group 1w8)

Figure 2.—**Kudzu used to protect the sides of a deep field ditch that removes excess water.**

Figure 3.—**Cotton growing on Arkabutla silt loam.**

Atwood Series

The Atwood series consists of well-drained soils on uplands. These soils formed in moderately fine textured material. Slopes are 0 to 17 percent.

In a representative profile the surface layer is reddish-brown silt loam about 5 inches thick. The subsoil is red silty clay loam to a depth of 13 inches, then reddish-brown silty clay loam to a depth of about 66 inches, and red to yellowish-red silty clay loam to a depth of more than 84 inches.

Representative profile of Atwood silt loam, 2 to 5 percent slopes, in a 180-acre area used for corn, 9 miles north of Houston on State Highway 15, and 50 feet east of pavement, SW¼NE¼ sec. 28, T. 12 S., R. 3 E.

Ap—0 to 5 inches, reddish-brown (5YR 5/4) silt loam; weak, fine, granular structure; very friable; many fine roots; medium acid; abrupt, smooth boundary.

B21t—5 to 13 inches, red (2.5YR 4/6) silty clay loam; moderate, medium, subangular blocky structure; friable, slightly plastic and slightly sticky; many fine roots;

few manganese splotches; continuous clay films on ped faces; strongly acid; clear, smooth boundary.

B22t—13 to 23 inches, reddish-brown (2.5YR 4/4) silty clay loam; moderate, fine to medium, angular and subangular blocky structure; friable, slightly plastic and slightly sticky; many fine roots; few manganese splotches; continuous clay films on ped faces; strongly acid; clear, smooth boundary.

B23t—23 to 40 inches, reddish-brown (2.5YR 4/4) silty clay loam; moderate, fine to medium, angular and subangular blocky structure; friable, slightly plastic and slightly sticky; common fine roots; many manganese splotches, few fine manganese concretions; continuous clay films on ped faces; strongly acid; clear, smooth boundary.

B24t—40 to 66 inches, reddish-brown (2.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; friable, slightly plastic and slightly sticky; few manganese splotches; patchy clay films on ped faces; strongly acid; clear, smooth boundary.

B25t—66 to 74 inches, red (2.5YR 5/6) silty clay loam; moderate, medium, subangular blocky structure; friable, slightly plastic and slightly sticky; common manganese concretions; common clay films on ped faces; strongly acid; clear, smooth boundary.

B26t—74 to 87 inches, yellowish-red (5YR 4/8) silty clay loam; few, fine, faint, pale-brown mottles; moderate, medium, subangular blocky structure; friable, slightly plastic and slightly sticky; few, fine, manganese concretions; patchy clay films on ped faces; strongly acid.

The Ap horizon is reddish brown, red, dark red, or brown and is 3 to 6 inches thick. The Bt horizon is dark red, dark reddish brown, red, reddish brown, or yellowish red. In the upper 20 inches of the Bt horizon, clay content ranges from 27 to 35 percent. Sand content of the lower part of the Bt horizon gradually increases with depth; consequently texture ranges from silty clay loam to clay loam. Manganese splotches and concretions in the Bt horizon range from none to common. Reaction is medium acid to strongly acid, except for the surface layer in areas that have been limed.

Atwood soils are associated with Cahaba, Ora, Prentiss, and Ruston soils. They contain less sand in the B horizon than Cahaba and Ruston soils. They are redder than Ora and Prentiss soils and lack the fragipan that is typical of those soils.

Atwood silt loam, 0 to 2 percent slopes (AtA).—This is a deep soil on flat ridgetops. Included in mapping are small areas of Brewton, Falkner, Ora, and Ruston soils.

The surface layer is brown to reddish-brown silt loam about 6 inches thick. The subsoil is reddish-brown to dark-red silty clay loam. It is underlain by red clay loam at a depth of 4 to 6 feet.

Reaction is medium acid to strongly acid. The available water capacity is very high. Water moves through the soil at a moderate rate. Runoff is slow, and erosion is a slight hazard in cultivated areas.

Tilth is easy to maintain, and the soil can be worked throughout a wide range of moisture content without clodding and crusting. A plowpan forms readily if depth of plowing is not varied. Row crops can be grown year after year if the crops are ones that provide a large amount of residue, and if this residue is properly managed.

This soil is well suited to cotton, corn, soybeans, small grain, and pasture plants if it is adequately fertilized. Most areas are used for row crops or pasture. (Capability unit I–1; woodland group 2o7)

Atwood silt loam, 2 to 5 percent slopes (AtB).—This is a deep soil on ridgetops. It has the profile described as representative for the series. Included in mapping are small areas of Ora, Prentiss, and Ruston soils.

Reaction is medium acid to strongly acid. The available water capacity is very high. Water moves through the soil at a moderate rate. Runoff is slow to medium, and the hazard of erosion is moderate in cultivated areas.

Tilth is easy to maintain, and the soil can be worked throughout a wide range of moisture content without clodding or crusting. A plowpan forms if depth of plowing is not varied. Row crops can be grown year after year by following good conservation practices, such as planting on the contour and using cultivated crops that leave a large amount of residue.

Cotton, corn, soybeans, small grain, and pasture plants are well suited to this soil if it is adequately fertilized. Most areas are used for row crops or pasture. (Capability unit IIe–1; woodland group 2o7)

Atwood silt loam, 5 to 8 percent slopes, eroded (AtC2).—This deep soil is on long ridgetops and upper side slopes. Most areas are marked by shallow gullies and rills. These rills and gullies are obliterated by ordinary cultivation. A few deep gullies are in some areas. Included in mapping are small areas of Ora, Prentiss, and Ruston soils.

The surface layer is reddish-brown silt loam about 3 inches thick. The subsoil is dark reddish brown or dark-red silty clay loam that grades to clay loam at depths generally below 30 inches.

Reaction is medium acid to strongly acid. The available water capacity is very high. Water moves through this soil at a moderate rate. Runoff is medium, and the hazard of erosion is moderate in cultivated areas.

Good tilth can be maintained by proper cropping systems and good management of crop residue. A plowpan forms if the depth of cultivation is not varied. This pan can be broken by chiseling when the soil is dry. If this soil is cultivated, a cropping system must be used that helps to control erosion. Contour cultivation, grassed waterways, and terraces are effective in helping to reduce runoff and control erosion.

Cotton, corn, soybeans, small grain, and pasture plants grow well on this soil if adequate amounts of fertilizer are applied. Most areas are used for row crops or pasture. (Capability unit IIIe–1; woodland group 2o7)

Atwood silt loam, 8 to 17 percent slopes, severely eroded (AtD3).—This deep soil is on side slopes. Rills and shallow gullies are in most areas, and a few deep gullies are in some areas. Included in mapping are small areas of Cahaba, Ora, and Ruston soils.

The present surface layer is brown to dark-red silt loam about 3 to 4 inches thick. It consists mainly of material that was formerly part of the subsoil. The subsoil is dark reddish-brown to dark-red silty clay loam. It is underlain by clay loam below a depth of about 30 inches.

Reaction is medium acid to strongly acid. Water moves through this soil at a moderate rate. The available water capacity is very high. Runoff is rapid, and the hazard of further erosion is severe.

A cover of plants is needed on this soil as much of the time as possible to reduce the rate of erosion and to increase the rate of infiltration.

This soil is well suited to pine trees and pasture plants. Because of its slopes and the hazard of further erosion, this soil is poorly suited to row crops. Most cleared areas are in pasture. (Capability unit VIe–1; woodland group 2o7)

Belden Series

The Belden series consists of somewhat poorly drained soils on flood plains. These soils formed in medium-textured and moderately fine textured alluvium. Slopes are 0 to 2 percent.

In a representative profile the surface layer is dark grayish-brown silty clay loam about 8 inches thick. The subsoil, which extends to a depth of 60 inches, is grayish-brown clay loam or silty clay loam mottled with yellowish brown and brown.

Representative profile of Belden silty clay loam, in a large area used for cotton, 1½ miles northeast of Van Vleet along Chuquatonchee Creek, SE¼SE¼ sec. 28, T. 12 S., R. 4 E.

Ap—0 to 8 inches, grayish-brown (10YR 4/2) silty clay loam; weak, fine, subangular blocky structure; friable; common fine roots; slightly acid; abrupt, smooth boundary.

B21g—8 to 17 inches, grayish-brown (2.5Y 5/2) clay loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; weak, fine and medium, angular and subangular blocky structure; friable, plastic and sticky; few fine roots; medium acid; clear, smooth boundary.

B22g—17 to 30 inches, grayish-brown (2.5Y 5/2) silty clay loam; common, medium, distinct, brown (10YR 5/3) and yellowish-brown (10YR 5/6) mottles; weak, fine and medium, angular and subangular blocky structure; friable; plastic and sticky; few fine roots; common black concretions; medium acid; clear, smooth boundary.

B23g—30 to 60 inches, grayish-brown (10YR 5/2) clay loam; common, medium, distinct, brown (10YR 5/3) and yellowish-brown (10YR 5/6) mottles; weak, fine, subangular blocky structure; plastic and sticky; many black concretions and splotches that increase in size with increasing depth; medium acid.

The Ap horizon is dark grayish brown or grayish brown. The B2 horizon is dark grayish brown or grayish brown and is mottled with yellowish brown, brown, or light brownish gray. Texture of the B horizon is silt loam, silty clay loam, or clay loam. This horizon is 40 to 60 percent silt and 25 to 35 percent clay. A few to many, black and brown concretions occur throughout the profile. Reaction of these soils is medium acid or slightly acid, except for the surface layer in areas that have been limed.

Belden soils are associated with Arkabutla, Catalpa, Leeper, and Una soils. They are not so acid in the B horizon as Arkabutla soils. They are less clayey in the B horizon than Catalpa and Leeper soils. They have less clay and are less acid in the B horizon than Una soils.

Belden silty clay loam (Be).—This soil is on flood plains. Included in mapping are small areas of Marietta and Una soils. Also included are small areas of unnamed similar soils that are neutral to mildly alkaline.

Reaction is medium acid or slightly acid. The available water capacity is high. Water moves through the soil at a moderate rate. Runoff is slow, and the hazard of erosion is slight in cultivated areas. Flooding occurs commonly in winter and early in spring, but only occasionally during the growing season. It seldoms damages crops.

Row crops can be grown year after year if good conservation practices are used. Surface field ditches and graded rows are needed to remove excess surface water.

If adequately drained and fertilized, this soil is well suited to cotton, corn, soybeans, and pasture plants. Most of the acreage is cultivated or used for pasture, but a few areas are in pine trees or hardwoods. (Capability unit IIw-6; woodland group 1w8)

Brewton Series

The Brewton series consists of somewhat poorly drained soils that have a fragipan. These soils formed in medium-textured material. Slopes are 0 to 3 percent.

In a representative profile the surface layer is brown or light yellowish-brown fine sandy loam about 12 inches thick. The subsoil, to a depth of about 22 inches, is light yellowish-brown loam mottled with light brownish gray. Below this, and extending to a depth of about 72 inches, the subsoil is compact, brittle loam mottled with gray and yellow. The underlying material, which reaches to a depth of 78 inches or more, is yellowish-brown loam mottled with gray.

Representative profile of Brewton fine sandy loam, in a 40-acre tract used for pasture, 1 mile west of McCondy and two miles north of county road, NE¼NW¼ sec. 34, T. 14 S., R. 4 E.

A1—0 to 1 inch, brown (10YR 5/3) fine sandy loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary.

A2—1 to 12 inches, light yellowish-brown (2.5Y 6/4) fine sandy loam; weak, medium, subangular blocky structure; very friable; common fine roots; strongly acid; clear, smooth boundary.

B2—12 to 22 inches, light yellowish-brown (2.5Y 6/4) loam; common, medium, distinct, light brownish-gray (10YR 6/2) mottles; weak, medium, subangular blocky structure; friable; few fine roots; clay bridgings of sand grains; sand and silt coatings on ped faces; strongly acid; clear, smooth boundary.

Bx1—22 to 29 inches, light yellowish-brown (2.5Y 6/4) loam; many, coarse, distinct, gray (10YR 6/1) and yellowish brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; firm to slightly compact and brittle; clay bridgings of sand grains; strongly acid; clear, wavy boundary.

Bx2—29 to 72 inches, mottled gray (10YR 6/1) and yellowish-brown (10YR 5/6) loam; moderate, medium, subangular blocky structure; firm, compact and brittle; clay bridgings of sand grains; sand and silt coatings on ped faces; strongly acid; clear, wavy boundary.

C—72 to 78 inches, yellowish-brown (10YR 5/4) loam; common, coarse, distinct, gray (10YR 6/1) mottles; structureless; friable; common iron and manganese concretions; strongly acid.

The A1 horizon is dark gray, grayish brown, dark grayish brown, or brown. The A2 horizon is pale brown, yellowish brown, or light yellowish brown. The B2 horizon is dominantly light yellowish brown or is mottled in shades of yellow, brown, or gray. Texture of the B horizon is loam, sandy loam, or silt loam. This horizon is less than 18 percent clay, but it averages about 10 percent. The upper part of the Bx (fragipan) horizon is yellowish brown or light yellowish brown mottled with gray, and the lower part is mottled in shades of gray, yellow, and brown. The degree of fragipan development is weak to moderate. Black and brown concretions range from none to many throughout the profile. Reaction is strongly acid or very strongly acid, except for the surface soil in areas that have been limed.

Brewton soils are associated with Mashulaville, Prentiss, and Trebloc soils. They are better drained than Mashulaville soils, which are dominantly gray between the fragipan and surface layer. They are more poorly drained than the Prentiss soils, which lack mottles in a chroma of 2 or less within a depth of 16 inches. Brewton soils are less than 18 percent clay in the B horizon, whereas the Trebloc soils are 18 to 32 percent clay in the B horizon.

Brewton fine sandy loam (Br).—This soil is on broad flats. Included in mapping are small areas of Mashulaville, Prentiss, and Trebloc soils.

Reaction is strongly acid or very strongly acid. The available water capacity is medium. Water moves through the soil at a moderate rate above the fragipan, but it moves slowly in the fragipan. Runoff is slow, and the hazard of erosion is slight in cultivated areas.

This soil can be cultivated year after year if good conservation practices are used. Graded rows and surface field ditches are needed to remove excess surface water.

If adequately drained and fertilized, this soil is suited to corn, soybeans, small grain, and pasture plants. Most of the acreage is used for pasture or is cultivated, but a few areas are wooded. (Capability unit IIIw-3; woodland group 2w8)

Brooksville Series

The Brooksville series consists of somewhat poorly drained soils on uplands. These soils formed in fine-textured material. Slopes are 0 to 5 percent.

In a representative profile the surface layer is about 24 inches thick. The upper 6 inches is very dark grayish-brown silty clay, the next 10 inches is very dark gray silty clay mottled with yellowish red, and the lower 8 inches is very dark grayish-brown silty clay mottled with red. The next layer below a depth of 24 inches is dark grayish-brown silty clay mottled in shades of brown and red. Below a depth of 50 inches is light olive-brown silty clay mottled in shades of brown and gray.

Representative profile of Brooksville silty clay, 0 to 2 percent slopes, in a pasture one-half mile east of U.S. Highway 45 at Egypt, 1.9 miles north, and 200 feet west into pasture, NE¼NE¼ sec. 25, T. 13 S., R. 5 E.

Ap—0 to 6 inches, very dark grayish-brown (2.5Y 3/2) silty clay; moderate, medium, granular structure; friable, plastic; few fine roots; few, fine, brown concretions; neutral; abrupt, smooth boundary.

A11—6 to 16 inches, very dark gray (5Y 3/1) silty clay; few, fine, prominent, yellowish-red mottles; moderate, medium, prismatic structure parting to moderate, medium and fine, angular blocky structure; firm, very plastic and very sticky; few fine roots; few, fine, brown and black concretions; slightly acid; clear, wavy boundary.

A12—16 to 24 inches, very dark grayish-brown (2.5Y 3/2) silty clay; many, fine, prominent, red mottles; moderate, medium, prismatic structure parting to moderate, fine and medium, angular blocky structure; firm, very plastic and very sticky; few fine roots; few, fine, black and brown concretions; slightly acid; clear, wavy boundary.

AC1—24 to 32 inches, dark grayish-brown (2.5Y 4/2) silty clay; many, fine, prominent, yellowish-red mottles and distinct, dark yellowish-brown mottles; moderate, medium, prismatic structure parting to moderate, medium and fine, angular blocky structure; firm, very plastic and very sticky; few fine roots; common, fine, brown and black concretions; neutral; gradual, wavy boundary.

AC2—32 to 39 inches, dark grayish-brown (2.5Y 4/2) silty clay; many, fine, faint, olive-brown mottles; intersecting slickensides; moderate, fine and medium, angular blocky structure; firm, very plastic and very sticky; few, fine, black and brown concretions; mildly alkaline; gradual, wavy boundary.

C1—39 to 50 inches, dark grayish-brown (2.5Y 4/2) silty clay; many, fine, faint, light olive-brown mottles; intersecting slickensides; moderate, fine and medium, angular blocky structure; very firm, very plastic and very sticky; few fine roots; few brown and black concretions; few coarse lime nodules; calcareous, moderately alkaline; gradual, wavy boundary.

C2—50 to 68 inches, light olive-brown (2.5Y 5/4) silty clay; many, fine, faint, yellowish-brown and dark grayish-brown mottles; intersecting slickensides; moderate, fine and medium, angular blocky structure; very firm, very plastic and very sticky; few brown and black concretions; few coarse lime nodules; calcareous, moderately alkaline; gradual, wavy boundary.

C3—68 to 82 inches, mottled yellowish-brown (10YR 5/6) and gray (N 5/0) silty clay; intersecting slickensides; moderate, medium, angular blocky structure; very firm, very plastic and very sticky; many, fine and medium, black concretions; few coarse lime nodules; calcareous, moderately alkaline.

The Ap horizon ranges from very dark gray to very dark grayish brown. The A1 horizon is very dark gray, very dark brown, or very dark grayish brown. Texture of the A horizon is silty clay loam or silty clay. This layer is 4 to 6 inches thick. Reaction is slightly acid to mildly alkaline. Clay content between depths of 10 and 40 inches ranges from 35 to 55 percent. Few to many, distinct or prominent mottles of red or brown are within a depth of 20 inches. The AC horizon is dark grayish-brown or dark-brown silty clay loam, silty clay, or clay. Reaction in this horizon is slightly acid to mildly alkaline. The C horizon ranges from dark grayish brown and light olive brown to mottled yellowish brown and gray, and texture is silty clay or clay. This horizon is neutral to moderately alkaline. There are few to many black and brown concretions throughout the profile.

Brooksville soils are associated with Demopolis, Kipling, and Okolona soils. They have a thicker profile than Demopolis soils. They are darker in color than Kipling soils and lack the B horizon of those soils. Brooksville soils resemble Okolona soils in color, but they have red or brown mottles in the upper 20 inches.

Brooksville silty clay, 0 to 2 percent slopes (BvA).—This soil is on broad, flat ridgetops. It has the profile described as representative for the series. Included in mapping are small areas of Kipling and Okolona soils and a few small areas of Demopolis soils.

Reaction is slightly acid to mildly alkaline in the upper part of the profile and neutral to moderately alkaline in the lower part. The available water capacity is high. Water moves through the soil very slowly. Runoff is slow, and the hazard of erosion is slight. This soil shrinks and forms cracks as it dries and swells as it becomes wet.

This soil can be row cropped year after year if adequate conservation practices are used. It can be worked within only a narrow range of moisture content without clodding and crusting. Tilth is not easily maintained, but shredding crop residue and leaving it on the surface helps to improve the tilth. Graded rows and surface field ditches are needed to remove excess surface water.

If this soil is adequately fertilized, it is suited to cotton, corn, soybeans, small grain, and pasture plants. Most areas are used for row crops or pasture. (Capability unit IIw-2; woodland group 4c2c)

Brooksville silty clay, 2 to 5 percent slopes (BvB).—This soil is on ridgetops. Included in mapping are small areas of Demopolis, Kipling, and Okolona soils.

The surface layer is very dark grayish-brown silty clay about 4 inches thick. The subsurface layer is very dark brown or very dark grayish brown and about 16 inches thick. The next layer is dark grayish-brown to olive-gray silty clay or clay that has distinct mottles of red or brown.

Reaction is slightly acid to mildly alkaline in the upper part of the profile and neutral to moderately alkaline in the lower part. The available water capacity is high. Water moves through the soil very slowly. Runoff is medium, and the hazard of erosion is moderate.

Tilth is not easily maintained. The soil shrinks and cracks as it dries. It can be worked within only a narrow range of moisture content without clodding and crusting. Where this soil is cultivated, crops that produce a large amount of residue should be grown to help reduce crusting and packing and help control erosion.

This soil is suited to cotton, corn, soybeans, small grain, and pasture plants if it is properly fertilized. Most of the areas are used for row crops and pasture. (Capability unit IIIe-3; woodland group 4c2c)

Cahaba Series

The Cahaba series consists of well-drained soils on uplands. These soils formed in moderately coarse textured to moderately fine textured material. Slopes are 12 to 35 percent.

In a representative profile the surface layer is yellowish-brown fine sandy loam about 6 inches thick. The subsoil is yellowish-red sandy clay loam to a depth of 39 inches and yellowish-red sandy loam to a depth of 85 inches or more.

Representative profile of Cahaba fine sandy loam, 12 to 35 percent slopes, in a large tract of mixed hardwoods and pines, 4½ miles southwest of Van Vleet in the Tombigbee National Forest, SW¼NW¼ sec. 31, T. 13 S., R. 4 E.

Ap—0 to 6 inches, yellowish-brown (10YR 5/4) fine sandy loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary.

B21t—6 to 20 inches, yellowish-red (5YR 4/6) sandy clay loam; weak, medium, subangular blocky structure; friable; many fine roots; few patchy clay films on ped faces; strongly acid; gradual, wavy boundary.

B22t—20 to 39 inches, yellowish-red (5YR 4/8) sandy clay loam; few, medium, distinct, reddish-yellow (5YR 6/6) mottles; weak, medium, subangular blocky structure; friable; few fine roots; patchy clay films on ped faces; strongly acid; gradual, wavy boundary.

B23t—39 to 58 inches, yellowish-red (5YR 4/8) sandy loam; weak, medium, subangular blocky structure; friable; few fine roots; coatings and bridgings of sand grains with clay; strongly acid.

B3t—58 to 85 inches, yellowish-red (5YR 4/6) sandy loam; weak, medium, subangular blocky structure; friable; coatings and bridgings of sand grains with clay; strongly acid.

The Ap horizon is yellowish brown, brown, light yellowish brown, or dark yellowish brown. The B2t horizon is dominantly yellowish red but ranges to reddish brown. Its texture is loam, sandy clay loam, and clay loam. In most places the upper 20 inches of this horizon is 18 to 35 percent clay. The B3t horizon is yellowish-red, red, or reddish-brown sandy loam or fine sandy loam. Reaction of these soils is strongly acid or very strongly acid.

Cahaba soils are associated with Atwood, Ora, and Ruston soils. They are less silty and have a thinner B2t horizon than Atwood soils. They have a B2t horizon that is less clayey within a depth of 60 inches than the one in the Ruston soils. They lack the fragipan that is typical of the Ora soils.

Cahaba fine sandy loam, 12 to 35 percent slopes (CaF).—This soil is on long side slopes.

Reaction is strongly acid or very strongly acid. The available water capacity is medium. Water moves through the subsoil at a moderate rate. Runoff is rapid to very rapid, and erosion is a severe hazard.

Because it is steep, this soil is not suited to cultivated crops or pasture, but it is suited to trees. Nearly all of the acreage is in pine forest. (Capability unit VIIe-1; woodland group 3r3)

Catalpa Series

The Catalpa series consists of moderately well drained soils on flood plains. These soils formed in fine-textured alluvium. Slopes are 0 to 2 percent.

In a representative profile (fig. 4) the surface layer is very dark grayish brown and about 16 inches thick. The upper 5 inches is silty clay loam, and the lower 11 inches is silty clay. Below this and extending to a depth of 48 inches is olive-gray silty clay mottled in shades of brown and gray. The mottling increases with increasing depth.

Representative profile of Catalpa silty clay loam, in a 160-acre area used for alfalfa, 3 miles northwest of Okolona, SW¼SW¼ sec. 10, T. 12 S., R. 5 E.

Ap—0 to 5 inches, very dark grayish-brown (2.5Y 3/2) silty clay loam; weak, fine, granular and subangular blocky structure; friable, sticky and plastic; common fine roots; moderately alkaline, calcareous; clear, smooth boundary.

Figure 4.—**Profile of Catalpa silty clay loam.**

A1—5 to 16 inches, very dark grayish-brown (10YR 3/2) silty clay; moderate, medium, subangular blocky structure; firm, sticky and plastic; few fine roots; few, fine, brown concretions; pressure faces on peds; moderately alkaline, calcareous; clear, smooth boundary.

B2—16 to 32 inches, olive-gray (5Y 4/2) silty clay; few, fine, distinct, light olive brown mottles; moderate, medium, subangular blocky structure; firm, plastic and sticky; shiny pressure faces on peds; moderately alkaline, calcareous; clear, smooth boundary.

B3—32 to 48 inches, mottled dark yellowish-brown (10YR 4/4) and gray (5Y 5/1) silty clay; moderate, fine and medium, angular and subangular blocky structure; firm, plastic and sticky; shiny pressure faces on peds; neutral to mildly alkaline.

The Ap and A1 horizons are very dark brown, very dark gray, or very dark grayish-brown silty clay loam or silty clay. The B2 horizon is dark grayish brown, olive brown, or olive gray. Texture of the B2 and B3 horizons is silty clay or clay. Clay content between depths of 10 and 40 inches ranges from 40 to 60 percent. The B3 horizon is mottled in shades of gray and brown. Reaction of these soils ranges from neutral to moderately alkaline.

Catalpa soils are associated with Belden, Leeper, Robinsonville, and Una soils. They are not so gray as Belden soils, they have more than 40 percent clay in the B horizon, and they are more alkaline throughout the profile. Catalpa soils are not so gray between the Ap horizon and a depth of 30 inches as the Leeper soils. They lack the stratified, sandier subsoil that is typical of Robinsonville soils. They are not so gray and are more alkaline than Una soils.

In some areas these soils have a slightly thicker A horizon than is within the range defined for the Catalpa series. This difference does not alter the use or behavior of these soils in these areas.

Catalpa silty clay loam (Ct).—This soil is on flood plains. Included in mapping are small areas of Belden and Leeper soils.

Reaction is neutral to moderately alkaline. The available water capacity is high. Water moves through the soil slowly. Runoff is slow, and the hazard of erosion is slight in cultivated areas. The soil is sticky and plastic when wet and shrinks and cracks as it dries. It can be cultivated within only a narrow range of moisture content. Flooding occurs commonly in winter and early in spring but only occasionally during the growing season. It seldom damages crops.

This soil can be cropped year after year if it is adequately drained and if suitable cropping systems are used.

If adequately drained and fertilized, this soil is well suited to cotton, corn, soybeans, small grain, and pasture plants. Nearly all the areas are cultivated, but a small acreage is used for pasture. Only a few areas are wooded. (Capability unit IIw-4; woodland group 1w5)

Demopolis Series

The Demopolis series consists of shallow, well-drained soils on uplands. These soils formed in moderately fine textured material over chalk. Slopes are 2 to 25 percent.

In a representative profile (fig. 5) the surface layer is dark grayish-brown silty clay loam about 6 inches thick. The underlying horizon is light-gray silty clay loam to a depth of about 10 inches. Below this is light-gray chalk.

Representative profile of Demopolis silty clay loam, 2 to 8 percent slopes, severely eroded, in an area of broomsedge and scattered redcedars, 2 miles west of Okolona and 2.2 miles south of State Highway 32, NE¼NE¼ sec. 8, T. 13 S., R. 5 E.

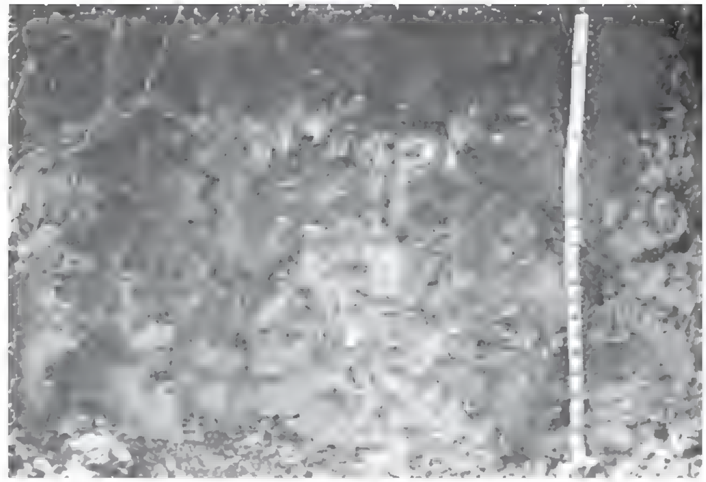


Figure 5.—**Profile of Demopolis silty clay loam.**

Ap—0 to 6 inches, dark grayish-brown (5Y 4/2) silty clay loam; moderate, fine, granular structure; common fine roots; fine lime fragments; calcareous, moderately alkaline; clear, wavy boundary.

C—6 to 10 inches, light-gray (5Y 7/2) silty clay loam; common, medium, distinct, pale yellow (5Y 7/4) mottles; weak, fine, subangular blocky structure; friable; about 50 percent platy chalk fragments; few fine roots; calcareous, moderately alkaline; clear, irregular boundary.

R—10 to 48 inches, light-gray (5Y 7/2) chalk; common, coarse, distinct, yellow (5Y 7/4) mottles; horizontal platy rock structure.

The Ap horizon is dark grayish-brown or brown silty clay loam or silty clay and is 3 to 6 inches thick. The C horizon is olive, olive-brown, light-gray, light brownish-gray, pale-yellow, or pale-olive silty clay loam to clay loam. The R horizon is light gray or light brownish gray. Depth to chalk ranges from 5 to 16 inches.

Demopolis soils are associated with Brooksville, Kipling, and Okolona soils. They are not so dark in the A horizon as the Brooksville and Okolona soils, and they have a thinner solum. They are less acid and have a thinner solum than the Kipling soils.

Demopolis silty clay loam, 2 to 8 percent slopes, severely eroded (DeC3).—This soil is on ridgetops. Most areas contain several shallow gullies and a few deep ones. This soil has the profile described as representative for the series. Included in mapping are small areas of Brooksville and Okolona soils.

Reaction is moderately alkaline. Water moves through the soil slowly. The available water capacity is low. Runoff is medium to rapid, and the hazard of further erosion is severe.

Because of the severe erosion and because of chalk near the surface, a permanent cover of plants is needed to protect this soil from further erosion.

If this soil is adequately fertilized, it is only poorly suited to moderately well suited to some close-growing plants and sod plants, such as bermudagrass, johnsongrass, wild winter peas, vetch, white clover, and sweetclover. King Ranch bluestem is better than other plants for controlling erosion. Most of the acreage is idle or in pasture. (Capability unit VIe-4; woodland group 4d3c)

Demopolis-Kipling complex, 8 to 25 percent slopes, severely eroded (DkE3).—This complex consists of mod-

erately steep to steep soils on side slopes. These soils occur in such an intricate pattern, which changes within short distances, that it is not practical to map each kind of soil separately. Demopolis soils make up about 44 percent of the acreage and Kipling soils 30 percent. The rest consists of Okolona and other minor soils.

The Demopolis soils in this complex have a surface layer of silty clay loam to silty clay about 5 inches thick. The subsoil is light-gray to pale-yellow silty clay that contains many chalk fragments. These soils generally are on the upper side slopes. Reaction is moderately alkaline.

The Kipling soils have a surface layer that is predominantly subsoil material and about 4 inches thick, but in places there are scattered patches of the original silt loam surface layer. The present surface layer is dominantly yellowish brown in color. The subsoil is mottled yellowish-brown clay. These soils occupy the middle and lower slopes. Reaction is medium acid to strongly acid in the upper part of the profile and medium acid to moderately alkaline in the lower part.

Water moves through these soils slowly. The available water capacity is low in Demopolis soils and high in Kipling soils. Runoff is rapid, and erosion is a severe hazard.

The soils of this complex should be kept in a permanent cover of plants because of the slope and the severe erosion hazard.

Most of the acreage is pasture or scrub hardwoods on the Kipling soils and eastern redcedar on the Demopolis soils. (Capability unit VIe 5; woodland group 4d3c)

Falkner Series

The Falkner series consists of somewhat poorly drained soils on uplands. These soils formed in moderately fine textured to fine textured material. Slopes are 0 to 3 percent.

In a representative profile the surface layer is dark grayish-brown silt loam about 5 inches thick. The upper part of the subsoil, which extends to a depth of 38 inches, is yellowish-brown and light brownish-gray silty clay loam that is mottled at a depth below about 14 inches. The lower part of the subsoil is gray and light brownish-gray silty clay that reaches to a depth of 67 inches or more and is mottled throughout with shades of red and brown or gray and brown.

Representative profile of Falkner silt loam, in a wooded area, 7 miles south of Houston and 1½ miles west of State Highway 15, SW¼SE¼ sec. 2, T. 15 S., R. 2 E.

Ap—0 to 5 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; friable; many fine roots; strongly acid; abrupt, smooth boundary.

B21t—5 to 9 inches, yellowish-brown (10YR 5/6) silty clay loam; weak, medium, subangular blocky structure; firm, plastic and sticky; few fine roots; patchy clay films on ped faces; strongly acid; clear, smooth boundary.

B22t—9 to 14 inches, yellowish-brown (10YR 5/6) silty clay loam; common, medium, distinct, pale-brown (10YR 6/3) mottles; weak, medium, subangular blocky structure; firm, plastic and sticky; few fine roots; few patchy clay films on ped faces; strongly acid; clear, smooth boundary.

B23t—14 to 20 inches, mottled yellowish-brown (10YR 5/6), light brownish-gray (10YR 6/2), and yellowish-red (5YR 4/6) silty clay loam; moderate, medium, subangular blocky structure; firm, plastic and sticky; few fine roots; few, fine, brown concretions; strongly acid; clear, smooth boundary.

B24t—20 to 38 inches, mottled light brownish-gray (10YR 6/2), yellowish-brown (10YR 5/6), and yellowish-red (5YR 4/6) silty clay loam; compound, moderate, coarse, prismatic structure and strong, fine to medium, angular blocky structure; firm, plastic and sticky; few fine roots; gray silt between peds and on ped faces; few, fine, brown concretions; strongly acid; clear, smooth boundary.

IIB25t—38 to 49 inches, gray (10YR 6/1) silty clay; common, medium, prominent, yellowish-red (5YR 5/6) and yellowish-brown (10YR 5/6) mottles; moderate, fine and medium, angular blocky structure; very firm, very plastic and very sticky; few fine roots; patchy clay films or pressure faces on peds; few, fine, brown concretions; strongly acid; clear, smooth boundary.

IIB26t 49 to 67 inches, mottled light brownish-gray (10YR 6/2) and yellowish-brown (10YR 5/6) silty clay; weak, fine and medium, angular blocky structure; very firm, very sticky and very plastic; few fine roots; few, fine, brown concretions; strongly acid.

The Ap horizon is very dark gray, dark grayish brown, or brown. In some places the B21t, B22t, and B23t horizons are light yellowish brown or yellowish brown, but in other places they are light olive brown and have few to many gray mottles or are mottled in shades of yellow or gray. The B24t, B25t, and B26t horizons are mottled in shades of brown and gray or have gray matrix colors. The texture of the Bt horizon is silty clay loam or silty clay. In the uppermost 20 inches of the B horizon, the content of clay ranges from 18 to 35 percent. In most places the B horizon has few to many, soft, brown concretions. Reaction throughout the profile is strongly acid or very strongly acid, except in the surface layer in areas that have been limed.

Falkner soils are associated with Adaton, Mayhew, Tippah, and Wilcox soils. They are not so gray and so poorly drained as Adaton and Mayhew soils. They lack the reddish upper part of the Bt horizon that is typical of Tippah soils. They are not so clayey in the upper 20 inches of the Bt horizon as the Wilcox soils.

Falkner silt loam (Fa).—This soil is on broad upland flats. Included in mapping are small areas of Adaton, Mayhew, and Wilcox soils and a few small areas of Tippah soils.

Reaction is strongly acid or very strongly acid. The available water capacity is high. Permeability is moderately slow in the upper part of the profile and slow in the lower part. The soil is easily worked, but it crusts and packs if left bare. A plowpan forms if this soil is plowed at the same depth year after year. Runoff is slow, and the hazard of erosion is slight in cultivated areas.

Row crops can be grown each year if drainage is adequate and suitable cropping systems are used. Surface field ditches and graded rows are needed to remove excess surface water.

If this soil is adequately drained and fertilized, it is suited to cotton, corn, soybeans, small grain, sweetpotatoes, and pasture plants. It is also suited to pine trees and adapted hardwoods. Most areas are used for row crops or pasture. (Capability unit IIIw-2; woodland group 2w8)

Gullied Land

Gullied land is a miscellaneous land type that occurs on uplands throughout the county. It consists of soils so severely damaged by erosion that reclamation for row crops and pasture is not economically practical. A large part of the surface layer and much of the subsoil have been lost through erosion, and there are many gullies not crossable

with farm machinery. Slopes range from 5 to 45 percent. The texture ranges from clay to sand.

Gullied land-Demopolis complex, 8 to 25 percent slopes (GdE).—This complex is on steep, eroded chalk bluffs in the eastern part of the county. The landscape consists of moderate to steep slopes that are broken by numerous gullies and short drains. The areas of this complex generally are no larger than the surrounding areas that consist of only one soil. The small size of the areas occupied by the individual soils and gullies of this complex makes it impractical to map them separately at the scale used on the soil map.

Deep gullies in an intricate pattern make up about 72 percent of the complex, and Demopolis soils make up about 28 percent. The pattern and extent of the soils and gullies are uniform. Each area contains both gullies and Demopolis soils. The Demopolis soils occur as islands in the gullies.

The gullies range from 5 to 150 feet in width and from 2 to 10 feet in depth. Most of the gullied area has eroded into the underlying chalk (fig. 6), and the soil profile is no longer discernible. These areas support a sparse cover of redcedars, and some grass grows between the gullies. Runoff is very rapid, and erosion is active in the areas that are not protected.

Demopolis soils occur between the gullies. The surface layer of these soils is dark grayish-brown silty clay loam about 3 inches thick. It contains many fine and medium chalk fragments. The subsoil is mottled olive and pale-olive silty clay loam that is about 50 percent platy chalk fragments.

The Demopolis soils are moderately alkaline and calcareous. Water moves through the soil slowly. The available water capacity is low. Runoff is rapid, and the hazard of erosion is high if these soils are left bare.

Because of rapid runoff and the severe erosion hazard, these soils should be kept in permanent vegetation.

Many gullies are bare of any vegetation, and the areas between the gullies are covered with poor quality native grasses and scrub hardwoods. (Capability unit VIIe-5; not in a woodland group)

***Figure 6.*—Area of Gullied land-Demopolis complex, 8 to 25 percent slopes. Outcrops of chalk are in the foreground, and Demopolis soils are in the background. Redcedars and scrub hardwoods are growing on the Demopolis soils.**

Gullied land-Ruston complex, 5 to 30 percent slopes (GrE).—This complex consists of severely gullied land and of Ruston soils. It occurs throughout most of the central part of the county but mainly in the Tombigbee National Forest. The landscape consists of narrow ridgetops and steep side slopes. The areas of this complex generally are no larger than surrounding areas made up of only one soil. The small size of the areas occupied by individual soils and gullies of this complex makes it impractical to map them separately.

The network of gullies makes up about 72 percent of the complex, and Ruston soils make up the remaining 28 percent. The pattern and extent of the soils and gullies are uniform. Each area contains both gullies and Ruston soils.

The gullies range from 10 to 250 feet in width and from 2 to 30 feet in depth. Most of the gullied area has eroded into the underlying parent material, and the soil profile is no longer discernible. These gullies support a sparse cover of grasses and trees in most places, but they have healed over in others. Runoff is very rapid, and erosion is active in the areas that are not protected.

Ruston soils occur between the gullied areas. The surface layer of these soils is yellowish-brown fine sandy loam about 2 to 4 inches thick. The subsoil is yellowish-red or red sandy clay loam. The Ruston soils are strongly acid or very strongly acid. The available water capacity is medium. Water moves through these soils at a moderate rate.

It is difficult to establish a good plant cover on these soils because of rapid runoff. Nevertheless, permanent vegetation should be kept on them because of rapid runoff and the severe erosion hazard.

Most of the acreage has been planted to pines and sericea lespedeza (fig. 7). (Capability unit VIIe-4; not in a woodland group)

Kipling Series

The Kipling series consists of somewhat poorly drained soils on uplands. These soils formed in fine-textured material. Slopes are 0 to 25 percent.

In a representative profile the surface layer is dark-brown silt loam about 4 inches thick. The upper part of the subsoil is silty clay that reaches to a depth of about 20 inches. It is brown silty clay mottled with pale brown and gray below the surface layer and grades to mottled brown, gray, and yellow as the depth increases. The lower part of the subsoil, which extends to a depth of about 52 inches, is clay that is mottled in shades of gray, brown, and olive. Below this is chalk.

Representative profile of Kipling silt loam, 0 to 2 percent slopes, in a 100-acre area used for pasture, 3½ miles west of Okolona and ¾ mile north of State Highway 32, on west side of county road, SE¼NW¼ sec. 30, T. 12 S., R. 5 E.

Ap—0 to 4 inches, dark-brown (10YR 4/3) silt loam; weak, fine, granular structure; friable; many fine roots; medium acid; abrupt, smooth boundary.

B21t—4 to 11 inches, dark-brown (7.5YR 4/4) silty clay; common, medium, distinct, pale-brown (10YR 6/3) mottles; moderate, fine, angular and subangular blocky structure; firm, plastic and sticky; few fine roots; patchy clay films on ped faces; strongly acid; clear, smooth boundary.

B22t—11 to 20 inches, mottled brown (7.5YR 5/4), light-gray (2.5YR 7/2), and brownish-yellow (10YR 6/8) silty

Figure 7.—**Area of Gullied land-Ruston complex, 5 to 30 percent slopes, that has been stabilized by smoothing and planting to sericea lespedeza.**

clay; weak, fine, angular and subangular blocky structure; firm, plastic and sticky; few fine roots; few, fine, brown concretions; patchy clay films on ped faces; strongly acid; clear, smooth boundary.

B23t—20 to 27 inches, mottled light brownish-gray (2.5Y 6/2), olive-brown (2.5Y 4/6), and strong-brown (7.5YR 5/6) clay; weak, fine, angular blocky structure; firm, plastic and sticky; few slickensides; patchy clay films or pressure faces on peds; few, fine, brown concretions; strongly acid; clear, smooth boundary.

B24t—27 to 36 inches, light yellowish-brown (2.5Y 6/4) clay; common, medium, distinct, light brownish-gray (2.5Y 6/2) mottles; weak, fine, angular blocky structure; firm, plastic and sticky; few slickensides; patchy clay films or pressure faces on peds; few, fine, brown concretions; strongly acid; clear, smooth boundary.

B3—36 to 52 inches, pale-olive (5Y 6/3) clay; common, medium, distinct, light brownish-gray (2.5Y 6/2) mottles; weak, fine, angular blocky structure; firm, plastic and sticky; many slickensides; few, fine, brown concretions; medium acid.

R—52 to 60 inches, chalk.

The Ap horizon ranges widely in color. It is dark brown, brown, dark grayish brown, grayish brown, pale brown, or yellowish brown. This horizon is silt loam, silty clay loam, or silty clay in texture, and it ranges from 1 to 4 inches in thickness. The B horizon is yellowish brown, light yellowish brown, dark brown, brown, olive brown, or red mottled with gray or shades of yellow, red, or gray. The Bt horizon is silty clay loam, clay loam, silty clay, or clay. In the upper 20 inches of the B horizon, the content of clay ranges from 35 to 50 percent and the content of silt from 35 to 60 percent. The B3 horizon is similar to the Bt horizon in color and texture. Reaction in the upper part of the solum is medium acid to strongly acid. The B3 and C horizons, if present, range from medium acid to moderately alkaline. Slickensides intersect at depths below 40 inches.

Kipling soils are associated with Brooksville, Demopolis, and Okolona soils. They lack the dark-colored surface layer of the Brooksville and Okolona soils and are more acid in the upper part of the solum. They have a thicker solum than Demopolis soils.

Kipling silt loam, 0 to 2 percent slopes (KIA).—This soil is on ridgetops. It has the profile described as representative for the series. Included in mapping are small areas of Brooksville, Demopolis, and Okolona soils.

Reaction is medium acid or strongly acid in the upper part of the profile and medium acid to moderately alkaline in the lower part. Water moves through the soil very slowly. The available water capacity is high. Runoff is slow, and the hazard of erosion is slight in cultivated areas.

This soil can be row cropped year after year if adequate conservation practices are used. Graded rows and surface field ditches are needed to remove excess surface water. Good tilth is difficult to maintain. The soil swells when wet and shrinks and cracks as it dries. The proper use of crop residue improves tilth.

The soil is suited to soybeans, small grain, and pasture plants and is moderately well suited to cotton and corn. It is also suited to pine trees and adapted hardwoods. Most areas of this soil are cleared and under cultivation. (Capability unit IIw–2; woodland group 2c8)

Kipling silt loam, 2 to 5 percent slopes, eroded (KIB2).—This soil overlies chalk. Rills and shallow gullies have formed in most areas, and there are a few deep gullies. Included in mapping are small areas of Brooksville, Demopolis, and Okolona soils.

In cultivated areas, the surface layer is a mixture of the original surface layer and the upper part of the subsoil. The present surface layer is mainly pale-brown silt loam, but it has some yellowish-brown patches. The upper part of the subsoil, which extends to a depth of about 20 inches, is yellowish-brown silty clay or clay. The lower part is clay mottled in shades of gray, brown, and olive. The subsoil is underlain by chalk at a depth of about 50 inches.

Reaction is medium acid or strongly acid in the upper part of the profile and medium acid to moderately alkaline near the chalk. Water moves through the soil very slowly. The available water capacity is high. Runoff is slow to medium, and the hazard of erosion is slight to moderate in cultivated areas.

If this soil is cropped, an adequate cropping system must be used to help control erosion. Good management that includes using a suitable cropping system, cultivating on the contour, stripcropping, terracing, and keeping grass in waterways can control erosion. Good tilth is difficult to maintain. The soil swells when wet and shrinks and cracks as it dries. Use of crop residue is beneficial.

The soil is suited to soybeans, pasture plants, small grain, pine trees, and adapted hardwood trees. It is moderately well suited to cotton and corn. Most areas of this soil are cultivated. (Capability unit IIIe–8; woodland group 2c8)

Kipling silt loam, 5 to 8 percent slopes, eroded (KIC2).—This soil overlies chalk. Most areas are marked by rills and shallow gullies and a few deep gullies. Included in mapping are small areas of Demopolis and Okolona soils.

The surface layer is grayish-brown silt loam about 3 inches thick. The upper part of the subsoil extends to a depth of about 12 inches and is yellowish-brown silty clay loam. In the lower part, the subsoil grades to silty clay, and it is mottled in shades of red, brown, and gray.

Reaction is medium acid or strongly acid in the upper part of the profile and medium acid to moderately alkaline in the lower part near the chalk. The available water capacity is high. Water moves through the soil very slowly. Runoff is medium, and the hazard of erosion is severe in cultivated areas.

This soil can be used for row crops if cultivating on the contour, stripcropping, terracing, and grassing of water-

ways are practiced. Tilth is difficult to maintain, and use of crop residue is beneficial. The soil shrinks and cracks as it dries.

If adequate amounts of fertilizer are applied, the soil is suited to soybeans, small grain, and pasture plants. It is also suited to adapted trees. Most areas of this soil are used for pasture. (Capability unit IVe–2; woodland group 2c8)

Kipling silty clay loam, 2 to 5 percent slopes, severely eroded (KpB3).—This soil is on upland ridgetops. Most of the original surface layer has been lost through erosion. Shallow gullies have formed, and there are a few deep ones. Included in mapping are small areas of Brooksville, Demopolis, and Okolona soils.

The present surface layer is yellowish-brown silty clay loam. The upper part of the subsoil, extending to a depth of about 18 inches, is mottled brownish-gray and yellowish-brown clay. The lower part is clay mottled in shades of gray, brown, and olive. The subsoil is underlain by chalk.

Reaction is medium acid to strongly acid in the upper part of the profile but medium acid to moderately alkaline in the lower part. The available water capacity is high. Water moves very slowly through the lower part of the soil. Runoff is medium, and the hazard of erosion is severe.

This soil can be used for row crops if cultivating on the contour, stripcropping, terracing, and grassed waterways are used. Tilth is difficult to maintain. The soil shrinks and cracks as it dries. It can be cultivated only within a narrow range of moisture content.

The soil is suited to pasture plants if it is properly fertilized. It is also suited to pine trees. Most areas are used for pasture. (Capability unit IVe–3; woodland group 2c8)

Kipling silty clay, 5 to 12 percent slopes, severely eroded (KsD3).—This soil is on uplands. It occurs on middle and lower slopes in the eastern part of the county. Shallow gullies have formed, and there are a few deep ones.

Most of the original surface layer has been removed by erosion. The present surface layer is dark grayish-brown silty clay 1 or 2 inches thick. The upper part of the subsoil, extending to a depth of 16 inches, is yellowish-brown silty clay. The lower part is underlain by mottled gray, yellowish-brown, and red clay. The underlying material is chalk.

Reaction is medium acid to strongly acid in the upper part of the profile but medium acid to moderately alkaline in the lower part. The available water capacity is high. Water moves through the soil very slowly. Runoff is rapid, and erosion is a serious hazard. This soil shrinks and cracks as it dries.

Because of the slope and the hazard of further erosion, this soil should be kept in permanent vegetation. Most areas are used for pasture and trees. (Capability unit VIe–3; woodland group 2c8)

Leeper Series

The Leeper series consists of somewhat poorly drained soils on flood plains. These soils formed in fine-textured alluvium. Slopes are 0 to 2 percent.

In a representative profile the surface layer is dark grayish-brown silty clay loam to a depth of about 7 inches. The upper part of the subsoil, to a depth of about 20 inches, is silty clay; the lower part, which reaches to a depth of 52 inches, is clay. The upper 23 inches is dark grayish brown; the next 10 inches is olive gray and mottled with dark yellowish brown; and the lower 12 inches is mottled in shades of gray and brown.

Representative profile of Leeper silty clay loam, in a large area used for soybeans, 2.5 miles north of Okolona and 100 yards east of U.S. Highway 45, SW¼NE¼ sec. 14, T. 12 S., R. 5 E.

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) silty clay loam; weak, fine, subangular blocky structure; friable, plastic and sticky; many fine roots and worm casts; moderately alkaline, calcareous; clear, smooth boundary.

B21—7 to 20 inches, dark grayish brown (10YR 4/2) silty clay; moderate, medium, subangular blocky structure; firm, plastic and sticky; few fine roots; moderately alkaline, calcareous; clear, smooth boundary.

B22—20 to 30 inches, dark grayish-brown (2.5Y 4/2) clay; few, fine, distinct, yellowish-brown (10YR 5/4) mottles; weak, medium, subangular blocky structure; firm, plastic and sticky; few fine roots; moderately alkaline; clear, smooth boundary.

B23g—30 to 40 inches, olive-gray (5Y 5/2) clay; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; firm, plastic and sticky; few fine roots; moderately alkaline; clear, smooth boundary.

B24g—40 to 52 inches, mottled olive-gray (5Y 5/2), dark yellowish-brown (10YR 4/4), and strong-brown (7.5YR 5/6) clay; weak, medium, subangular blocky structure; firm, plastic and sticky; few brown concretions; moderately alkaline.

The Ap horizon is dark brown, dark grayish brown, or grayish brown. The upper part of the B horizon is grayish brown or dark grayish brown, and the lower part is olive gray, dark grayish brown, or grayish brown and mottled with dark yellowish brown and olive brown. The texture is silty clay or clay. Clay content between depths of 10 and 40 inches ranges from 40 to 60 percent. Few to many, brown and black concretions occur in the lower part of the profile. Reaction of these soils ranges from medium acid to moderately alkaline.

Leeper soils are associated with Belden, Catalpa, Robinsonville, and Una soils. They are more clayey in the B horizon than Belden soils. They are not so well drained as the Catalpa soils and lack the thick, dark surface layer of those soils. Leeper soils lack the sandier, stratified subsoil that is typical of the Robinsonville soils. They are better drained and more alkaline throughout than Una soils.

Leeper silty clay loam (Le).—This soil is on flood plains. Included in mapping are small areas of Belden, Catalpa, and Una soils.

Reaction is medium acid to moderately alkaline. The available water capacity is high. Water moves through the soil slowly. Runoff is slow, and the hazard of erosion is slight in cultivated areas. The soil is difficult to keep in good tilth and can be cultivated within only a narrow range of moisture content. Flooding occurs commonly in winter and early in spring, but only occasionally during the growing season.

Row crops can be grown year after year if good conservation practices are followed. Surface field ditches and graded rows are needed to remove excess surface water.

If adequately drained and fertilized, this soil is well suited to cotton, corn, soybeans, small grain, and pasture plants. Most areas are cultivated or are used for pasture, but a few are wooded. (Capability unit IIw–4; woodland group 1w6)

Marietta Series

The Marietta series consists of moderately well drained soils on flood plains. These soils formed in medium-textured to moderately fine textured alluvium. Slopes are 0 to 2 percent.

In a representative profile the surface layer is dark yellowish-brown fine sandy loam about 7 inches thick. The upper part of the subsoil, which extends to a depth of about 16 inches, is dark yellowish-brown loam. The middle part extends to a depth of about 32 inches and is dark-brown loam mottled with grayish brown. The lower part of the subsoil, which reaches to a depth of more than 48 inches, is loam mottled with shades of brown and red.

Representative profile of Marietta fine sandy loam, 1¾ miles south of State Highway 32; SW¼SE¼ sec. 11, T. 13 S., R. 3 E.

Ap—0 to 7 inches, dark yellowish-brown (10YR 4/4) fine sandy loam; weak, fine, granular structure; very friable; common fine roots; slightly acid; abrupt, smooth boundary.

B21—7 to 16 inches, dark yellowish-brown (10YR 4/4) loam; weak, fine, granular structure; very friable; common fine roots; slightly acid; clear, smooth boundary.

B22—16 to 23 inches, dark-brown (10YR 4/3) loam; few, fine, faint, grayish-brown mottles; weak, medium, subangular blocky structure; friable; few fine roots; few, medium, brown concretions; slightly acid; clear, smooth boundary.

B23—23 to 32 inches, dark-brown (10YR 4/3) loam; few, medium, distinct, grayish-brown (10YR 5/2) mottles; weak, medium, subangular blocky structure; friable; common, medium, brown concretions; slightly acid; clear, smooth boundary.

B24—32 to 48 inches, mottled dark-brown (10YR 4/3), grayish-brown (2.5Y 5/2), and yellowish-red (5YR 4/6) loam; weak, medium, subangular blocky structure; friable; common, medium, black, manganese concretions; slightly acid.

The Ap horizon is dark grayish brown, grayish brown, brown, or dark yellowish brown. The upper part of the B horizon is dark yellowish brown, brown, or dark brown and has few to many grayish mottles within a depth of 24 inches. The lower part of the B horizon has colors similar to those of the upper part, or it is mottled in shades of brown, gray, and red. Texture of the B horizon is loam, silty clay loam, or clay loam. Clay content in the B horizon ranges from 18 to 35 percent, and the content of fine and coarser sand is more than 15 percent. Few to common, black and brown concretions are in the lower part of the B horizon. Reaction ranges from medium acid to mildly alkaline.

Marietta soils are associated with Arkabutla, Robinsonville, Rosebloom, Rosebloom, sandy variant, and Urbo soils. They have more sand in the B horizon than Arkabutla and Urbo soils, and are better drained and not so acid in all horizons. They do not have the sandier, stratified subsoil that is typical of the Robinsonville soils. Marietta soils are better drained than Rosebloom, sandy variant, soils. They are better drained and less acid throughout than the Rosebloom soils.

Marietta fine sandy loam (Ma).—This soil is on flood plains. Included in mapping are small areas of Arkabutla and Rosebloom soils.

Reaction is medium acid to mildly alkaline. Water moves through the soil at a moderate rate. The available water capacity is medium. Runoff is slow, and the hazard of erosion is slight in cultivated areas. This soil is easy to cultivate throughout a moderate range of moisture content. Flooding occurs commonly in winter and early in spring but only occasionally during the growing season.

Row crops can be grown year after year if good conservation practices are used. Surface field ditches and graded rows are needed to remove excess surface water.

If adequately drained and fertilized, this soil is well suited to cotton, corn, soybeans, small grain, and pasture plants. Most of the acreage is cultivated or used for pasture, but a few areas are wooded. (Capability unit IIw–3; woodland group 1w5)

Mashulaville Series

The Mashulaville series consists of poorly drained soils on uplands. These soils formed in medium-textured material. Slopes are 0 to 2 percent.

In a representative profile the surface layer is grayish-brown loam about 6 inches thick. The subsurface layer, which extends to a depth of about 19 inches, is gray loam mottled in shades of brown and yellow. Below this and reaching to a depth of 58 inches or more is a brittle, compact layer of light-gray loam mottled in shades of brown and yellow.

Representative profile of Mashulaville loam, in a wooded area, 1½ miles west of McCondy, SE¼NW¼ sec. 34, T. 14 S., R. 4 E.

A1—0 to 6 inches, grayish-brown (2.5Y 5/2) loam; many, medium, faint, brown (10YR 5/3) mottles; weak, fine, granular structure, friable; many fine roots; common, soft, brown concretions; strongly acid; clear, smooth boundary.

A21g—6 to 10 inches, gray (10YR 6/1) loam; many, coarse, distinct, yellowish-brown (10YR 5/6) mottles; weak, fine and medium, subangular blocky structure; friable; few fine roots; coatings on sand grains; common black concretions; strongly acid; clear, smooth boundary.

A22g—10 to 19 inches, gray (10YR 6/1) loam; many, medium, distinct, brownish-yellow (10YR 6/8) and pale-brown (10YR 6/3) mottles; moderate, medium, subangular blocky structure; hard, slightly brittle; bridgings and coatings of clay on sand grains; many pores, many voids; many black concretions; strongly acid; clear, smooth boundary.

Bx1—19 to 33 inches, light-gray (10YR 7/1) loam; many, medium, faint and distinct, light brownish-gray (10YR 6/2) and brownish-yellow (10YR 6/8) mottles; weak, fine and medium, subangular blocky structure; friable and firm, hard, compact, and brittle; clay bridgings and coatings of clay on sand grains; many voids; few black concretions; many white silt coatings on peds; strongly acid; clear, smooth boundary.

Bx2—33 to 58 inches, gray (10YR 6/1) loam; common, medium, distinct, yellowish-brown (10YR 5/8) and light yellowish-brown (10YR 6/4) mottles; moderate, medium, subangular blocky structure; friable and firm, hard, compact, and brittle; gray silt and sand coatings on peds; strongly acid.

The A1 or Ap horizon ranges from very dark gray to grayish brown. The A2 horizon is gray or light brownish gray and is mottled in shades of yellow and brown. Texture of the A horizon is sandy loam, loam, and silt loam. Clay content in the lower part of the A2 horizon is 10 to 18 percent. The Bx horizon is light brownish gray, light gray, or gray and is mottled in shades of yellow and brown. Texture of this horizon ranges from loam to sandy loam. The entire profile is strongly acid or very strongly acid except for the surface layer in areas that have been limed.

Mashulaville soils are associated with Brewton, Ora, Prentiss, and Trebloc soils. They are grayer than the Brewton, Ora, and Prentiss soils and are not so well drained as those soils. They differ from Trebloc soils in having a fragipan and in being less silty throughout all horizons.

Mashulaville loam (Mh).—This nearly level soil is on uplands. Included in mapping are small areas of Brewton and Prentiss soils.

Reaction is strongly acid or very strongly acid. Water moves through the soil at a moderate rate above the fragipan, but it moves slowly through the fragipan. The available water capacity is medium. Runoff is slow, and the hazard of erosion is slight.

Because this soil is poorly drained, it is poorly suited to row crops. Where it is cultivated, excess surface water is a concern. Such measures as surface field ditches and graded rows help to remove excess surface water.

Most of the commonly grown pasture plants and hardwoods are suited to this soil. Most areas are in hardwoods and pasture. A small acreage is in row crops. (Capability unit IVw–1; woodland group 3w9)

Mayhew Series

The Mayhew series consists of poorly drained soils on uplands. These soils formed in fine-textured material. Slopes are 0 to 3 percent.

In a representative profile the surface layer is very dark gray silt loam about 4 inches thick. The upper part of the subsoil is light brownish-gray silty clay loam that extends to a depth of about 10 inches. The lower part is light brownish-gray to light olive-gray silty clay that extends to a depth of 48 inches or more.

Representative profile of Mayhew silt loam, in an area of mixed hardwoods and pines, 3 miles southwest of Houston, NE¼NW¼ sec. 13, T. 14 S., R. 2 E.

AO 1 inch to 0, partly decayed leaves and twigs.

A1—0 to 4 inches, very dark gray (10YR 3/1) silt loam; weak, fine, granular structure; friable to firm, slightly plastic; many fine roots; strongly acid; clear, smooth boundary.

B1g—4 to 10 inches, light brownish-gray (2.5Y 6/2) silty clay loam; weak, fine, angular and subangular blocky structure; firm, very plastic and very sticky; common fine roots; strongly acid; gradual, smooth boundary.

B21g—10 to 27 inches, light brownish-gray (2.5Y 6/2) silty clay; weak, fine, angular and subangular blocky structure; firm, very plastic and very sticky; few fine roots in upper part; clay films or pressure faces on peds; strongly acid; gradual, smooth boundary.

B22tg—27 to 48 inches, light olive-gray (5Y 6/2) silty clay; weak, fine, angular and subangular blocky structure; firm, very plastic and very sticky; strongly acid; few shale fragments.

The A1 horizon is very dark gray, grayish brown, or brown. The B horizon is light brownish gray, gray, or light olive gray. The uppermost 20 inches of the B horizon is silty clay loam, silty clay, or clay that is 35 to 60 percent clay. Reaction of these soils is strongly acid or very strongly acid, except for the surface layer in areas that have been limed.

Mayhew soils are associated with Adaton, Falkner, and Wilcox soils. They have colors similar to the Adaton soils, but they differ in having a content of 35 to 60 percent clay in the upper 20 inches of the B horizon. They are not so well drained as Falkner soils and are more clayey in the upper part of the B horizon. Mayhew soils are grayer in the upper part of the B horizon than Wilcox soils.

Mayhew silt loam (Mw).—This soil is on broad upland flats. Included in mapping are small areas of Adaton, Falkner, and Wilcox soils.

Reaction is strongly acid or very strongly acid. Water moves through the soil very slowly. The available water capacity is high.

If adequately drained this soil can be cropped year after year, provided good conservation practices are used. Surface field ditches and graded rows are needed to remove excess surface water. The soil is fairly easy to keep in good tilth.

This soil is suited to sweetpotatoes, soybeans, small grain, and pasture plants if it is adequately drained and fertilized. Most of the acreage is in mixed hardwoods, but a few areas are used for row crops and pasture. (Capability unit IIIw–1; woodland group 2w9)

Okolona Series

The Okolona series consists of well-drained soils on uplands. These soils formed in fine-textured, calcareous material. Slopes are 0 to 5 percent.

In a representative profile the surface layer is very dark gray clay 8 inches thick. Below the surface layer is 8 inches of very dark grayish-brown silty clay. The next layer which is 9 inches thick, is olive-brown silty clay. Below this is 9 inches of light olive-brown clay mottled with olive yellow. This layer is underlain by light brownish-gray clay that is 4 inches thick and is mottled with yellow. Below this is chalk.

Representative profile of Okolona clay, 0 to 2 percent slopes, in a 120-acre area used for hay, ⅘ mile north of the Clay County line and 200 yards west of the Monroe County line NE¼NE¼ sec. 36, T. 14 S., R. 5 E.

Ap—0 to 8 inches, very dark gray (10YR 3/1) clay; weak, medium, angular and subangular blocky structure; firm, plastic and sticky; few fine roots; few, fine, brown concretions; mildly alkaline; clear, smooth boundary.

A1—8 to 16 inches, very dark grayish-brown (2.5Y 2/2) silty clay; moderate, medium, angular blocky structure; very firm, very plastic and very sticky; few fine roots; common medium lime nodules; few, fine, brown concretions; few fine roots; calcareous; clear, wavy boundary.

AC1—16 to 25 inches, olive-brown (2.5Y 5/4) silty clay; moderate, medium, angular blocky structure; very firm, very plastic and very sticky; common fine roots; common medium lime nodules; few, fine, brown concretions; calcareous; clear, wavy boundary.

AC2—25 to 34 inches, light olive-brown (2.5Y 5/4) clay; common, medium, distinct, olive-yellow (2.5Y 6/6) mottles; moderate, medium, angular blocky structure; very firm, very plastic and very sticky; common slickensides; common medium lime nodules; few, fine, brown concretions; calcareous; clear, wavy boundary.

C—34 to 48 inches, light brownish-gray (2.5Y 6/6) clay; few, fine, distinct, yellow mottles; moderate, medium, angular blocky structure; very firm, very plastic and very sticky; many intersecting slickensides; calcareous; irregular boundary.

R—48 to 60 inches, chalk in horizontal plates.

The Ap horizon is very dark gray, very dark brown, or very dark grayish brown, and the thickness ranges from 6 to 8 inches. The A1 horizon is very dark brown or very dark grayish brown. Reaction in the A horizon is neutral or mildly alkaline. The AC horizon is light olive brown, olive brown, olive, olive gray, or grayish brown and is mottled in shades of yellow. The texture is silty clay or clay. Reaction in the AC horizon is mildly alkaline or moderately alkaline. The C horizon has matrix colors similar to the AC horizon, including light brownish gray, or it is mottled in shades of yellow, brown, or gray. The material between depths of 10 and 40 inches is 40 to 55 percent clay.

The Okolona soils are associated with Brooksville, Demopolis, and Kipling soils. They are more alkaline in the upper part of the solum and are better drained than the Brooksville

soils. They have a darker colored and thicker solum than the Demopolis soils. They lack the yellowish-brown textural Bt horizon that is characteristic of the Kipling soils.

Okolona clay, 0 to 2 percent slopes (OkA).—This soil is on broad ridgetops. It has the profile described as representative for the series. Included in mapping are small areas of Brooksville, Demopolis, and Kipling soils.

Reaction is neutral or mildly alkaline in the upper part of the profile and mildly alkaline or moderately alkaline in the lower part. The available water capacity is high. Water moves through the soil very slowly. Runoff is slow, and the hazard of erosion is slight in cultivated areas.

This soil can be cropped year after year if good conservation practices are used. Graded rows are needed to help remove excess surface water. Tilth is hard to maintain. The soil shrinks and cracks as it dries, and it can be worked within only a narrow range of moisture content without clodding and crusting. The proper use of crop residue helps to improve the tilth.

Cotton, corn, soybeans, small grain, and pasture plants are well suited if adequate amounts of fertilizer are applied. Most of the acreage is used for row crops or pasture. (Capability unit IIs-1; woodland group 4c2c)

Okolona clay, 2 to 5 percent slopes (OkB).—This clayey soil is gently sloping. Included in mapping are small areas of Brooksville, Demopolis, and Kipling soils. A few shallow gullies and rills are in some areas.

This soil has a surface layer of very dark gray clay about 6 to 8 inches thick. The subsoil is very dark grayish-brown silty clay in the upper part and olive-brown or olive-gray clay in the lower part.

Reaction is neutral or mildly alkaline in the upper part of the profile and mildly alkaline or moderately alkaline in the lower part. The available water capacity is high. Water moves through the soil very slowly. Runoff is slow to medium, and the hazard of erosion is moderate.

If this soil is cultivated, good conservation practices are needed to help control erosion. They include a suitable cropping system, cultivating on the contour, stripcropping, parallel terracing, and using grassed waterways. The soil shrinks and cracks as it dries and can be cultivated only within a narrow range of moisture content.

This soil is suited to cotton, corn, soybeans, small grain, and pasture plants if an adequate amount of fertilizer is applied. Most of the acreage is used for row crops or pasture. (Capability unit IIIe-4; woodland group 4c2c)

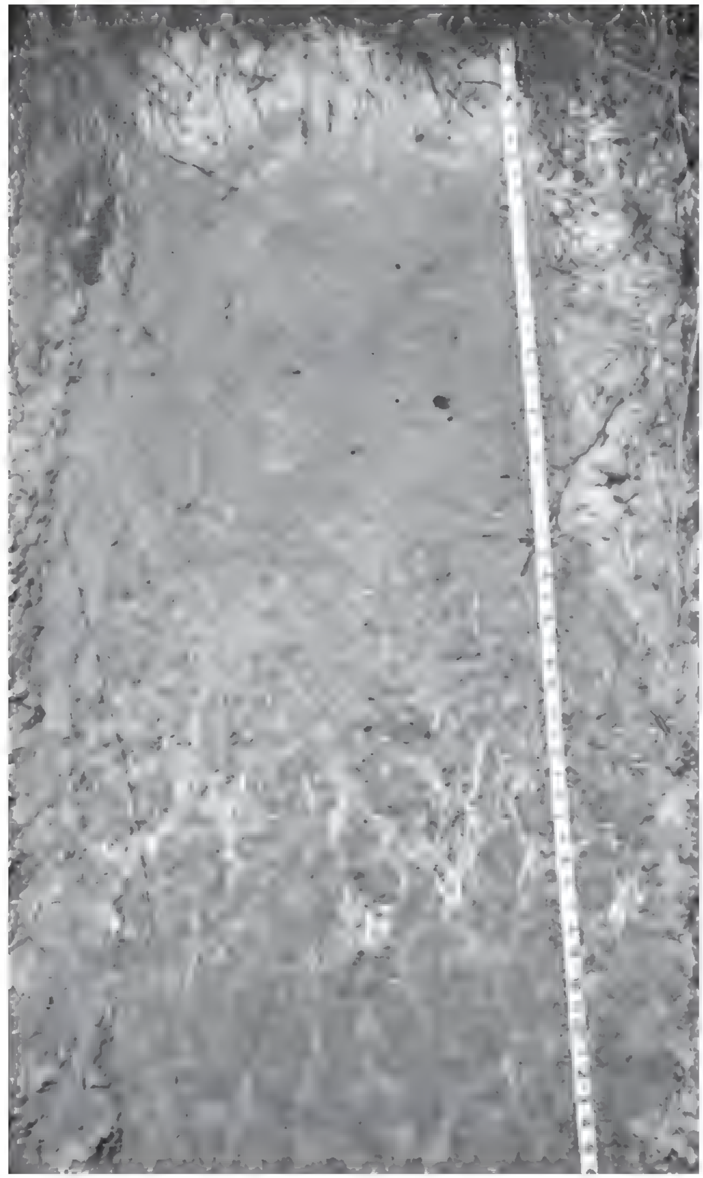


Figure 8.—Profile of Ora loam, 2 to 5 percent slopes.

Ora Series

The Ora series consists of moderately well drained soils that have a fragipan. These soils formed dominantly in medium-textured or moderately fine textured material. Slopes are 2 to 12 percent.

In a representative profile (fig. 8) the surface layer is dark yellowish-brown loam about 4 inches thick. The subsoil is dark-brown loam to a depth of 10 inches and yellowish-red loam to a depth of 27 inches. Below this is a brittle, compact layer of dark yellowish-brown loam that is mottled with pale brown and extends to a depth of 34 inches. The lower part of the subsoil, which extends to a depth of 54 inches or more, is a brittle, compact layer of sandy loam mottled in shades of brown.

Representative profile of Ora loam, 2 to 5 percent slopes, in a 50-acre tract of pines and sedgegrass, 2 miles east of Houston, on west side of gravel road, SE¼NE¼ sec. 2, T. 14 S., R. 3 E.

Ap—0 to 4 inches, dark yellowish-brown (10YR 4/4) loam; weak, fine, granular structure; friable; many fine roots; strongly acid; abrupt, smooth boundary.

B1—4 to 10 inches, dark-brown (10YR 4/3) loam; weak, medium, subangular blocky structure; friable; common fine roots; strongly acid; abrupt, smooth boundary.

B2t—10 to 27 inches, yellowish-red (5YR 4/6) loam; moderate, medium, subangular blocky structure; friable; common fine roots; common clay films; strongly acid; abrupt, wavy boundary.

Bx1—27 to 34 inches, dark yellowish-brown (10YR 4/4) loam; common, medium, distinct, pale-brown (10YR 6/3) mottles; weak, coarse, prismatic structure parting to moderate, medium, subangular blocky structure; firm, hard, brittle and compact; common black concretions; pockets of uncoated sand grains between prisms; strongly acid; clear, wavy boundary.

IIBx2—34 to 54 inches, mottled yellowish-brown (10YR 5/6), pale-brown (10YR 6/3), and dark-brown (7.5YR 4/4) sandy loam; moderate, medium, subangular blocky structure; firm, hard, brittle and compact; few, fine, black concretions; pockets of uncoated sand grains between prisms; strongly acid.

The A horizon is dark grayish brown, grayish brown, brown, dark yellowish brown, or yellowish brown and is 1 to 5 inches thick. The Bt horizon is reddish-brown, red, or yellowish-red loam, clay loam, or sandy clay loam. Clay content from the top of the Bt horizon to the upper boundary of the Bx (fragipan) horizon ranges from 18 to 30 percent. The Bx horizon is dark yellowish brown, yellowish red, or yellowish brown, or it is mottled in shades of red, brown, and gray. The texture is loam, sandy clay loam, or sandy loam. Depth to the fragipan ranges from 15 to 38 inches. Few to many small concretions are in the fragipan. Except for the surface layer in areas that have been limed, the entire profile is strongly acid or very strongly acid.

Ora soils are associated with Atwood, Cahaba, Mashulaville, Prentiss, and Ruston soils. They have a sandier Bt horizon than the Atwood soils. They are redder and are better drained than Mashulaville soils. Ora soils have a fragipan, which is absent in Atwood, Cahaba, and Ruston soils. They differ from Prentiss soils in being redder and having a clay content of 18 to 30 percent in the upper 20 inches of the Bt horizon.

Ora loam, 2 to 5 percent slopes (OrB).—This soil is on ridgetops. It has the profile described as representative for the series. Included in mapping are small areas of Brewton, Cahaba, Prentiss, and Ruston soils.

Reaction is strongly acid or very strongly acid. The available water capacity is medium. Water moves at a moderate rate through the upper part of the subsoil but at a moderately slow rate through the fragipan. Runoff is slow to medium, and the hazard of erosion is moderate.

This soil can be cropped year after year if it is well managed. Good management includes cultivating on the contour, stripcropping, terracing, and installing grassed waterways. Tilth is easy to maintain, and the soil can be worked throughout a wide range of moisture content without clodding and crusting.

If adequate amounts of fertilizers are applied, this soil is suited to cotton, corn, soybeans, small grain, and pasture plants. Most of the acreage is used for row crops and pasture. (Capability unit IIe–3; woodland group 3o7)

Ora loam, 5 to 8 percent slopes (OrC).—This soil is on narrow ridgetops and on the upper side slopes. Included in mapping are small areas of Atwood, Prentiss, and Ruston soils.

The surface layer is brown loam about 5 inches thick, and the subsoil is yellowish-red loam. At a depth of about 24 inches is a fragipan of brittle loam that is mottled in shades of red, yellow, and gray.

Reaction is strongly acid or very strongly acid. The available water capacity is medium. Water moves at a moderate rate through the upper part of the subsoil but at a moderately slow rate through the fragipan. Runoff is medium, and the hazard of erosion is moderate to severe in cultivated areas.

This soil can be cropped if good conservation practices are followed. Good management includes using grassed waterways, farming on the contour, and proper tillage. A suitable cropping system is needed to control erosion. Tilth is easy to maintain, and the soil can be worked throughout a wide range of moisture content.

Cotton, corn, soybeans, small grain, and pasture plants are suited to this soil if adequate amounts of fertilizer are applied. Most areas are used for row crops or pasture. (Capability unit IIIe–5; woodland group 3o7)

Ora loam, 5 to 8 percent slopes, severely eroded (OrC3).—This soil is on upper side slopes. Rills, shallow gullies, and a few deep gullies are common in most areas. Included in mapping are small areas of Atwood and Ruston soils.

The present surface layer is brown loam about 2 inches thick. The subsoil is yellowish-red loam. There is a brittle fragipan at a depth of about 15 inches. The fragipan is loam that is yellowish red or yellowish brown or is mottled in shades of red, brown, and gray.

Reaction is strongly acid or very strongly acid. The available water capacity is medium. Water moves through the upper part of the subsoil at a moderate rate and at a moderately slow rate through the fragipan. Runoff is medium, and the hazard of erosion is severe in cultivated areas.

Row crops can be grown if suitable management is used, such as stripcropping on the contour and using grassed waterways. This soil should remain in close-growing crops most of the time, however, because severe erodibility makes it poorly suited to row crops. Tilth is fair, and the soil can be worked throughout a fairly wide range of moisture content.

Most areas of this soil were formerly cultivated, but they are now used mainly for pasture and pine trees. (Capability unit IVe–1; woodland group 3o7)

Ora loam, 8 to 12 percent slopes, severely eroded (OrD3).—This soil occurs on short side slopes. Included in mapping are small areas of Atwood and Ruston soils.

The present surface layer is brown loam about 1 inch thick. The subsoil is yellowish-red loam. At a depth of about 15 inches there is a brittle loam fragipan that is mottled in shades of red, brown, and gray. Rills and shallow gullies are common, and a few deep gullies are present.

Reaction is strongly acid or very strongly acid. Available water capacity is medium. Water moves through the upper part of the subsoil at a moderate rate and through the fragipan at a moderately slow rate. Runoff is rapid, and the hazard of erosion is severe in cultivated areas. Tilth is generally fair, and the soil can be worked throughout a fairly wide range of moisture content.

The slope and the hazard of further erosion make this soil poorly suited to row crops. This soil is better suited to pasture and pine trees than to cultivated crops. Some areas of this soil were formerly cultivated, but they are now used mainly for pasture and pine trees. (Capability unit VIe–2; woodland group 3o7)

Prentiss Series

The Prentiss series consists of moderately well drained soils that have a fragipan. These soils formed in medium-textured material. Slopes are 0 to 5 percent.

In a representative profile the surface layer is dark grayish-brown fine sandy loam about 8 inches thick. The subsoil is yellowish-brown fine sandy loam to a depth of about 18 inches and yellowish-brown loam between depths of 18 and about 30 inches. Below this is a brittle, compact layer that is 30 inches thick. This layer is yellowish-brown loam that is mottled with very pale brown to a depth of 45 inches and, below this, in shades of brown to a depth of 60 inches.

Representative profile of Prentiss fine sandy loam, 2 to 5 percent slopes, in a 50-acre tract of mixed hardwoods and pines, 5 miles southeast of Houston and 0.3 mile west of State Highway 8, on south side of gravel road, NE¼SE¼ sec. 23, T. 14 S., R. 3 E.

A1—0 to 8 inches, dark grayish-brown (10YR 4/2) fine sandy loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary.

B1—8 to 18 inches, yellowish-brown (10YR 5/4) fine sandy loam; weak, medium, subangular blocky structure; very friable; common fine roots; strongly acid; clear, smooth boundary.

B21—18 to 30 inches, yellowish-brown (10YR 5/6) loam; moderate, medium, subangular blocky structure; friable; few roots; few clay films; few pockets of uncoated sand grains; common fine pores; strongly acid; clear, smooth boundary.

Bx1—30 to 45 inches, yellowish-brown (10YR 5/6) loam; few, fine, distinct, very pale brown mottles; weak, coarse, prismatic structure parting to moderate, medium, sub angular blocky; friable to firm, slightly compact and brittle; few fine roots; coatings of sand and silt on prism faces; patchy clay films on ped faces; strongly acid; clear, smooth boundary.

Bx2—45 to 60 inches, mottled light yellowish-brown (10YR 6/4), yellowish-brown (10YR 5/6), and very pale brown (10YR 7/3) loam; weak, coarse, prismatic structure parting to moderate, medium, subangular blocky; friable to firm, slightly compact and brittle; few patchy clay films on ped faces; coatings of sand and silt on prism faces; few manganese coatings and concretions; strongly acid.

The A horizon is dark grayish-brown, grayish-brown, or olive-yellow fine sandy loam or loam 7 to 8 inches thick. The B horizon is pale brown, brown, yellowish brown, light yellowish brown, or olive yellow. In the upper 20 inches of this horizon, the clay content ranges from 12 to 18 percent. The silt content ranges from 15 to 50 percent. The Bx horizon is yellowish brown or olive yellow, or it is mottled in shades of gray, brown, yellow, and red. Depth to the Bx horizon (fragipan) is 18 to 36 inches. Reaction in these soils is strongly acid or very strongly acid.

Prentiss soils are associated with Atwood, Brewton, Mashulaville, Ora, Trebloc, and Ruston soils. In contrast to Atwood and Ruston soils, the Prentiss soils have a fragipan, are not so red, and contain less clay in the B horizon. They are better drained than the Brewton and Mashulaville soils. Prentiss soils have more yellow color and less clay in the B horizon than Ora soils. They have less clay in the B horizon and are better drained than Trebloc soils.

Prentiss fine sandy loam, 0 to 2 percent slopes (PnA).—This soil is on broad, flat ridgetops. Included in mapping are small areas of Brewton, Mashulaville, and Ora soils.

The surface layer is grayish-brown fine sandy loam about 7 inches thick. The upper part of the subsoil is yellowish-brown loam, below which, at a depth of about 22 inches, is a fragipan of mottled brown and gray loam.

Reaction is strongly acid or very strongly acid. The available water capacity is medium. Water moves through the upper part of the subsoil at a moderate rate and through the fragipan at a moderately slow rate. Runoff is slow, and the hazard of erosion is slight in cultivated areas.

This soil can be cropped year after year if good conservation practices are used. Graded rows are needed to remove excess surface water. Tilth is easy to maintain, and the soil can be worked throughout a wide range of moisture content.

Cotton, corn, soybeans, small grain, and pasture plants are suited to this soil if it is adequately drained and fertilized. Most areas are used for row crops and pasture. (Capability unit IIw–1; woodland group 2o7)

Prentiss fine sandy loam, 2 to 5 percent slopes (PnB).—This soil occurs on ridgetops. It has the profile described as representative for the series. Included in mapping are small areas of Brewton, Mashulaville, and Ora soils.

Reaction is strongly acid or very strongly acid. The available water capacity is medium. Water moves through the upper part of the subsoil at a moderate rate but through the fragipan at a moderately slow rate. Runoff is slow to medium, and the hazard of erosion is slight to moderate in cultivated areas.

This soil can be cropped year after year if a suitable cropping system is used. Cultivating on the contour, stripcropping, terracing, and using grassed waterways help to control erosion. Tilth is easy to maintain, and the soil can be worked throughout a wide range of moisture content.

Cotton, corn, soybeans, small grain, and pasture plants are suited to this soil if it is adequately fertilized. Most areas are used for row crops or pasture. (Capability unit IIe–3; woodland group 2o7)

Robinsonville Series

The Robinsonville series consists of well-drained soils on flood plains. These soils formed in loamy and sandy alluvium. Slopes are 0 to 2 percent.

In a representative profile the surface layer is dark-brown sandy loam about 3 inches thick. The underlying material is yellowish-brown loamy sand to a depth of 12 inches, dark-brown loam mottled with yellowish brown to a depth of 26 inches, brown silt loam mottled with grayish brown to a depth of 38 inches, and dark-brown silty clay loam to a depth of 48 inches or more.

Representative profile of Robinsonville sandy loam, in an area of pasture on Chuquatonchee Creek bottom land, about 500 feet west of local road and 50 feet south of the creek, SW¼SW¼ sec. 12, T. 13 S., R. 4 E.

Ap—0 to 3 inches, dark-brown (10YR 4/3) sandy loam; weak, fine, granular structure; very friable; many fine roots; moderately alkaline; clear, smooth boundary.

C1—3 to 12 inches, yellowish-brown (10YR 5/4) loamy sand; structureless; very friable; many fine roots; moderately alkaline; clear, smooth boundary.

C2—12 to 26 inches, dark-brown (10YR 4/3) loam; common, medium, faint, yellowish-brown (10YR 5/6) mottles; structureless, but has bedding planes; very friable; few fine roots; moderately alkaline; clear, smooth boundary.

C3—26 to 38 inches, brown (10YR 5/3) silt loam; common, medium, faint, grayish brown (10YR 5/2) mottles; structureless, but has bedding planes; very friable; few fine roots; moderately alkaline; clear, smooth boundary.

C4—38 to 48 inches, dark-brown (10YR 4/3) silty clay loam; structureless, but has bedding planes; plastic and sticky; moderately alkaline.

The Ap horizon is dark-brown, dark grayish-brown, grayish-brown, brown, or brownish-yellow loam, sandy loam, or fine sandy loam. The C horizon is yellowish brown, dark brown, or brown. It is made up of strata of silt loam, loam, fine sandy loam, loamy very fine sand, or loamy fine sand. Clay content between depths of 10 and 40 inches is less than 10 percent, and content of sand coarser than very fine sand is more than 15 percent. In most profiles, at a depth of about 30 to 50 inches, the underlying material is silty clay loam. None to few, black and brown concretions are in the lower

part of these soils. Reaction ranges from slightly acid to moderately alkaline.

Robinsonville soils are associated with Catalpa, Leeper, and Marietta soils. They are better drained and less clayey than these associated soils.

Robinsonville and Marietta soils (Rm).—These soils occur as large areas on flood plains. They are associated, but they lack regularity of occurrence. Some areas consist of either Robinsonville or Marietta soils, but most areas contain both. Robinsonville soils make up about 56 percent of the mapped areas and Marietta soils about 31 percent. The remaining 13 percent is made up of unnamed soils that have a high silt content.

Robinsonville soils generally are at the slightly higher elevations near stream channels. They are well drained. The available water capacity is medium, and water moves through the soil at a moderate rate.

Marietta soils are moderately well drained. In a representative profile of these soils, the surface layer is dark yellowish-brown loam about 7 inches thick. In sequence from the top, the subsoil is dark yellowish-brown loam to a depth of about 20 inches, dark-brown clay loam that extends to a depth of 35 inches and is mottled in shades of grayish brown, and clay loam mottled in shades of brown and red to a depth of 48 inches.

Marietta soils are medium acid to mildly alkaline. The available water capacity is medium, and water moves through the soil at a moderate rate. Flooding occurs commonly in winter and early in spring but only occasionally during the growing season.

These soils can be cropped each year if suitable cropping systems are used. Graded rows and surface field ditches might be needed to remove excess surface water. Tilth is easily maintained, and the soil can be worked throughout a wide range of moisture content.

If adequately drained and fertilized, these soils are well suited to cotton, corn, soybeans, small grain, and pasture plants. Most of the acreage is in row crops or pasture. (Capability unit IIw–3; woodland group 1o4 for Robinsonville soils and 1w5 for Marietta soils)

Rosebloom Series

The Rosebloom series consists of poorly drained soils on flood plains. These soils formed in medium-textured to moderately fine textured alluvium. Slopes are 0 to 2 percent.

In a representative profile the surface layer is grayish-brown silt loam about 6 inches thick. The subsoil is light brownish-gray silt loam to a depth of 17 inches. Below this, and extending to a depth of 50 inches or more, the subsoil is gray silt loam mottled with yellowish brown.

Representative profile of Rosebloom silt loam, in an area 5 miles southwest of Houlka, NE¼NE¼ sec. 10, T. 13 S., R. 2 E.

Ap—0 to 6 inches, grayish-brown (10YR 5/2) silt loam; few, fine, faint, dark yellowish-brown mottles; weak, fine, granular structure; very friable; many fine roots; few, fine, black concretions; strongly acid; abrupt, smooth boundary.

B21g—6 to 17 inches, light brownish-gray (2.5Y 6/2) silt loam; weak, medium, subangular blocky structure; friable; few fine roots; common, fine, black concretions; strongly acid; gradual smooth boundary.

B22g—17 to 37 inches, gray (10 YR 6/1) silt loam; few, fine, distinct, dark yellowish-brown mottles; weak, fine, granular structure; friable; few fine roots; many black concretions; strongly acid; gradual, smooth boundary.

B23g—37 to 50 inches, gray (10YR 6/1) silt loam; weak, medium, subangular blocky structure; friable; many, coarse, brown and black concretions and stains; strongly acid.

The A horizon is grayish brown, brown, or pale brown. The B horizon is light brownish-gray, light-gray, or gray silt loam or silty clay loam. It has a clay content ranging from 18 to 35 percent. Reaction is strongly acid or very strongly acid.

Rosebloom soils are associated with Arkabutla, Marietta, the Rosebloom sandy variant, and Urbo soils. They are more poorly drained than the Arkabutla and Marietta soils, and in addition, the Marietta soils are medium acid to mildly alkaline. These Rosebloom soils are similar in drainage to Rosebloom soils, sandy variant, but they contain less sand in the B horizon. Between depths of 10 and 40 inches, they are more poorly drained and contain more clay than Urbo soils.

Rosebloom silt loam (Rs).—This soil is at the lowest elevations on the flood plains. Included in mapping are small areas of Arkabutla and Urbo soils.

Reaction is strongly acid or very strongly acid. Water moves through this soil at a moderate rate. The available water capacity is very high. Runoff is slow, and the hazard of erosion is slight. The soil is easy to cultivate throughout a moderate range of moisture content. Flooding occurs commonly in winter and early in spring but only occasionally during the growing season.

Where adequately drained, this soil can be cropped year after year if good conservation is practiced. Surface field ditches and graded rows are needed to remove excess surface water.

If adequately drained and fertilized, this soil is suited to soybeans and pasture plants and moderately well suited to corn. Most of the acreage is cultivated or used for pasture. The rest is in hardwoods. (Capability unit IIIw–4; woodland group 2w9)

Rosebloom Series, Sandy Variant

The Rosebloom series, sandy variant, consists of poorly drained soils that formed in moderately coarse textured to medium textured alluvium. These soils are on flood plains. Slopes are 0 to 2 percent.

In a representative profile the surface layer is dark grayish-brown fine sandy loam about 6 inches thick. The subsoil, which reaches to a depth of 48 inches or more, is gray loam mottled in shades of gray, brown, and yellow.

Representative profile of Rosebloom fine sandy loam, sandy variant, in a 30-acre area used for pasture, 1½ miles northeast of Houston, SE¼NE¼ sec. 28, T. 13 S., R. 3 E.

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) fine sandy loam; common, medium, distinct, gray (10YR 5/1) mottles; weak, fine, granular structure; friable; common fine roots; slightly acid; clear, smooth boundary.

B21g—6 to 15 inches, gray (10YR 5/1) loam; many, coarse, distinct, light brownish-gray (10YR 6/2) and dark-brown (10YR 4/3) mottles; weak, medium, subangular blocky structure; friable; few fine roots; many worm casts slightly acid; clear, smooth boundary.

B22g—15 to 20 inches, gray (10YR 5/1) loam; common, medium, distinct, yellowish-brown (10YR 5/4) mottles; weak, medium, subangular blocky structure; friable; few fine roots; many worm casts; few manganese concretions; slightly acid; clear, smooth boundary.

B3g—20 to 48 inches, gray (10YR 6/1) loam; common, medium, distinct, dark yellowish-brown (10YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few manganese concretions; slightly acid.

These soils have dominantly gray colors throughout, are medium acid to neutral, and have a loam texture between depths of 10 and 40 inches. The Ap horizon ranges from dark grayish brown to light brownish gray in color and is fine sandy loam or sandy loam. Clay content of the material between depths of 10 and 40 inches ranges from 10 to 17 percent; the content of sand coarser than very fine sand is more than 15 percent. Manganese concretions range from few to many throughout the profile.

These soils are outside the range presently described for the Rosebloom series, but because of limited acreage they are correlated as variants to the Rosebloom series.

The soils of the Rosebloom series, sandy variant, are associated with Arkabutla, Marietta, and the normal Rosebloom soils. They are more poorly drained than the Arkabutla and Marietta soils. They are similar to the normal Rosebloom soils in drainage but contain more sand in the B horizon.

Rosebloom fine sandy loam, sandy variant (Ro).—This soil occupies areas of low depressions on flood plains. Included in mapping are small areas of Marietta and Rosebloom soils.

Reaction is medium acid to neutral. The available water capacity is medium. Water moves through this soil at a moderate rate. Runoff is slow, and the hazard of erosion is slight.

Where this soil is cultivated, surface field ditches and graded rows are needed to remove excess surface water.

If adequately drained and fertilized, this soil is suited to pasture plants and moderately well suited to corn and soybeans. Because this soil is wet and is so nearly level that excess water does not drain off readily, it is poorly suited to row crops. Hardwood and pine trees are suited. Most areas are used for pasture and trees. (Capability unit IIIw-4; woodland group 2w9)

Ruston Series

The Ruston series consists of well-drained soils on uplands. These soils formed in thick beds of medium-textured and moderately fine textured material. Slopes are 2 to 12 percent.

In a representative profile the surface layer is brown fine sandy loam about 8 inches thick. The subsoil is yellowish-red or red sandy clay loam that reaches to a depth of about 72 inches. Below this, and extending to depths of more than 100 inches, it is red loam.

Representative profile of Ruston fine sandy loam, 2 to 5 percent slopes, in an area about 2 miles northwest of Van Vleet, SE¼NE¼ sec. 30, T. 12 S., R. 4 E.

Ap—0 to 8 inches, brown (7.5YR 5/4) fine sandy loam; weak, fine, granular structure; very friable; common fine roots; strongly acid; abrupt, smooth boundary.

B21t—8 to 24 inches, yellowish-red (5YR 4/6) sandy clay loam; weak, medium, subangular blocky structure; very friable; few fine roots; common clay films on ped faces and bridgings and coatings of sand grains with clay; strongly acid; gradual, smooth boundary.

B22t—24 to 34 inches, red (2.5YR 4/6) sandy clay loam; weak, medium, subangular blocky structure; very friable; few fine roots; common clay films on ped faces and bridgings and coatings of sand grains with clay; strongly acid; gradual, smooth boundary.

B23t—34 to 72 inches, red (2.5YR 4/8) sandy clay loam; weak, medium, subangular blocky structure; very friable; clay bridgings of sand grains; strongly acid; gradual, smooth boundary.

B23t—72 to 100 inches, red (2.5YR 4/8) loam; very weak, medium, subangular blocky structure; very friable; clay bridgings of sand grains; strongly acid.

The Ap horizon is brown, grayish brown, dark grayish brown, reddish brown, or yellowish brown and is 2 to 8 inches thick. The Bt horizon is yellowish-red, red, or reddish-brown loam, sandy loam, or sandy clay loam. Clay content of the upper 20 inches of the Bt horizon ranges from 18 to 30 percent. Reaction throughout the profile is strongly acid or very strongly acid, except in the surface layer in areas that have been limed.

Ruston soils are associated with Atwood, Cahaba, Ora, and Prentiss soils. They have more sand in the upper 20 inches of the B horizon than the Atwood soils. They have a thicker B2t horizon that contains more clay within a depth of 60 inches than the Cahaba soils. They do not have the fragipan of Ora and Prentiss soils.

Ruston fine sandy loam, 2 to 5 percent slopes (RuB).—This soil is on ridgetops. It has the profile described as representative for the series. Included in mapping are small areas of Atwood, Ora, and Prentiss soils.

Reaction is strongly acid or very strongly acid. The available water capacity is medium. Water moves through this soil at a moderate rate. Runoff is slight to medium, and the hazard of erosion is moderate in cultivated areas.

This soil can be cropped year after year if good conservation practices are followed. A suitable cropping system, stripcropping, cultivating on the contour, terracing, and grassed waterways are needed to control erosion. Tilth is easy to maintain, and the soil can be cultivated throughout a wide range of moisture content without clodding and crusting.

Cotton, corn, soybeans, small grain, and pasture plants are suited to this soil if it is adequately fertilized. Most of the acreage is in the Tombigbee National Forest and is in timber. Areas outside the forest are used for row crops or pasture. (Capability unit IIe-2; woodland group 3o1)

Ruston fine sandy loam, 5 to 8 percent slopes, eroded (RuC2).—This soil occurs on the upper side slopes of ridges. Most areas are marked by rills and a few shallow gullies. Included in mapping are small areas of Atwood and Ora soils.

The present surface layer is brown fine sandy loam about 6 inches thick. The subsoil is reddish-brown sandy clay loam.

Reaction is strongly acid or very strongly acid. The available water capacity is medium. Water moves through this soil at a moderate rate. Runoff is medium, and the hazard of erosion is moderate.

This soil can be cultivated if a suitable cropping system is used to control erosion. Where erosion is controlled and contour strips and grassed waterways are used, about an equal acreage of clean-tilled crops and close-growing crops can be grown. Good tilth can be maintained by good use of crop residue. The soil can be cultivated throughout a wide range of moisture content without clodding. A plowpan may form if depth of plowing is not varied.

Cotton, corn, soybeans, small grain, and pasture plants are suited to this soil if it is adequately fertilized. Most of the acreage is in the Tombigbee National Forest and is wooded. (Capability unit IIIe-2; woodland group 3o1)

Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded (RuD3).—This soil is on side slopes. Most

areas have shallow gullies and a few deep ones. Included in mapping are small areas of Atwood and Ora soils.

The present surface layer is brown fine sandy loam about 3 to 4 inches thick. It consists mainly of material from the original subsoil. The subsoil is dark-red sandy clay loam.

Reaction is strongly acid or very strongly acid. The available water capacity is medium. Water moves through this soil at a moderate rate. Runoff is rapid, and the hazard of erosion is severe.

This soil is better suited to pine trees and pasture plants than to field crops. Because of the slope and the hazard of further erosion, a permanent cover of plants should be kept on the surface at all times. Most of the acreage is wooded, but a few areas are in pasture. (Capability unit VIe–1; woodland group 3o1)

Sweatman Series

The Sweatman series consists of well-drained soils on uplands. These soils formed in fine-textured material underlain by stratified layers of shale. Slopes are 8 to 35 percent.

In a representative profile the surface layer is dark grayish-brown loam about 6 inches thick. The upper part of the subsoil, which extends to a depth of about 29 inches, is yellowish-red silty clay that is mottled with pale brown and strong brown between depths of 18 and 29 inches. The lower part of the subsoil, which extends to a depth of about 37 inches, is strong-brown silty clay mottled with red and light gray. The underlying material is stratified layers of grayish-brown weathered shale and light yellowish-brown fine sandy loam to a depth of 50 inches or more.

Representative profile of Sweatman loam, 8 to 12 percent slopes, in a wooded area, 2 miles south of Atlanta, SW¼NE¼ sec. 24, T. 15 S., R. 1 E.

A1—0 to 6 inches, dark grayish-brown (10YR 4/2) loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary.

B21—6 to 18 inches, yellowish-red (5YR 4/6) silty clay; moderate, medium, subangular blocky structure; firm, plastic and sticky; few fine roots; patchy clay films on ped faces; strongly acid; clear, smooth boundary.

B22t—18 to 29 inches, yellowish-red (5YR 4/6) silty clay; common, medium, distinct, pale-brown (10YR 6/3) and strong-brown (7.5YR 5/6) mottles; moderate, medium, angular blocky structure; firm, plastic and sticky; few fine roots; patchy clay films on ped faces; strongly acid; clear, smooth boundary.

B3t—29 to 37 inches, strong brown (7.5YR 5/6) silty clay; many, coarse, distinct, red (2.5YR 4/6) mottles; weak, medium, subangular blocky structure; firm, plastic and sticky; common, fine, light-gray (10YR 6/1) shale fragments; common fine mica flakes; strongly acid.

C—37 to 50 inches, stratified layers of grayish-brown (2.5YR 5/2) weathered shale and light yellowish-brown (2.5Y 6/4) fine sandy loam; structureless; firm; common fine mica flakes; strongly acid.

The Ap horizon ranges from dark grayish brown to yellowish brown and is 5 to 6 inches thick. The B2t horizon is yellowish-red or red silty clay loam, silty clay, or clay. In the upper 20 inches of the B horizon, clay content ranges from 35 to 55 percent and silt content from 30 to 50 percent. The B3t horizon is yellowish-red, red, or strong-brown fine sandy loam, clay loam, loam, silty clay loam, or silty clay. Reaction is strongly acid or very strongly acid. The C horizon is stratified fine sandy loam, sandy clay loam, loam, and weathered shale and is rich in mica flakes.

Sweatman soils are associated with Tippah and Wilcox soils. They have more clay in the upper part of the B horizon than the Tippah soils. They are better drained than the Wilcox soils and are not so gray as those soils.

Sweatman loam, 8 to 12 percent slopes (SwD).—This soil has short, choppy slopes. It has the profile described as representative for the series. Included in mapping are small areas of Tippah and Wilcox soils.

Reaction is strongly acid or very strongly acid. Water moves through this soil at a moderately slow rate. The available water capacity is high. Runoff is rapid, and the hazard of erosion is severe where the soil is not protected by permanent vegetation.

Because of the slope and the erosion hazard, this soil should be kept in permanent vegetation to control erosion.

This soil is well suited to pine trees. Most of the acreage is wooded, but some small areas are in pasture. (Capability unit VIe–6; woodland group 3c2)

Sweatman loam, 12 to 35 percent slopes (SwF).—This soil is on narrow ridgetops and on side slopes that are broken by numerous drainageways. Included in mapping are small areas of Tippah and Wilcox soils.

The surface layer is grayish-brown loam about 5 inches thick. The subsoil is red silty clay.

Reaction is strongly acid or very strongly acid. Available water capacity is high. Water moves through the soil at a moderately slow rate. Runoff is rapid, and the hazard of erosion is severe unless the soil is protected by permanent vegetation.

This soil is suited to trees (fig. 9), and all the acreage is wooded. (Capability unit VIIe–3; woodland group 3c2)

Tippah Series

The Tippah series consists of moderately well drained soils on uplands. These soils formed in moderately fine textured material over fine textured material. Slopes are 2 to 8 percent.

In a representative profile the surface layer is dark grayish-brown silt loam about 5 inches thick. The upper part of the subsoil is silty clay loam to a depth of about 32 inches. The color is dark brown in the uppermost 4 inches, yellowish brown in the next 11 inches, and strong

Figure 9.—A stand of loblolly pines obtained through release of natural seedlings and by underplanting. Deadened hardwoods are in the foreground.

brown in the lower 12 inches. The lower part of the subsoil is yellowish-brown silty clay that has light brownish-gray mottles to a depth of 42 inches and mottles in shades of brown and gray between depths of 42 and 58 inches.

Representative profile of Tippah silt loam, 5 to 8 percent slopes, in a field of sericea lespedeza, 2 miles south of Woodland, SE¼NE¼ sec. 26, T. 15 S., R. 2 E.

Ap—0 to 5 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; friable; common fine roots; strongly acid; clear, smooth boundary.

B21t—5 to 9 inches, dark-brown (7.5YR 4/4) silty clay loam; weak, medium, subangular blocky structure; friable; common fine roots; strongly acid; patchy clay films on ped faces; clear, smooth boundary.

B22t—9 to 20 inches, yellowish-red (5YR 4/6) silty clay loam; moderate, medium, subangular blocky structure; friable; few fine roots; many clay films on ped faces; strongly acid; clear, smooth boundary.

B23t—20 to 26 inches, strong-brown (7.5YR 5/6) silty clay loam; common, medium, distinct, light brownish-gray (10YR 6/2) mottles; moderate, medium, subangular blocky structure; friable; few fine roots; clay films on ped faces; few, fine, brown concretions; strongly acid; clear, smooth boundary.

B24t—26 to 32 inches, strong-brown (7.5YR 5/6) silty clay loam; common, medium, distinct, light brownish-gray (10YR 6/2) mottles; moderate, medium, subangular blocky structure; friable; clay films on ped faces; many black concretions; strongly acid; clear, smooth boundary.

IIB25t—32 to 42 inches, yellowish-brown (10YR 5/6) silty clay; common, medium, distinct, light brownish-gray (10YR 6/2) mottles; moderate, medium, subangular blocky structure; firm, plastic and sticky; many black concretions; clay films on ped faces; strongly acid; clear, smooth boundary.

IIB26t—42 to 58 inches, mottled yellowish-brown (10YR 5/6) and light brownish-gray (10YR 6/2) silty clay; moderate, medium, subangular blocky structure; firm, plastic and sticky; clay films on ped faces; strongly acid.

The Ap horizon is dark grayish brown, brown, yellowish brown, or light yellowish brown. The clay content of the Bt horizon is 20 to 35 percent. This horizon is strong brown, dark brown, or yellowish red and has grayish mottles in the lower part. Texture is silty clay loam or silt loam. The B horizon is less than 15 percent sand coarser than very fine sand. The IIBt horizon has red to yellowish-brown matrix colors and grayish mottles, or it is mottled in shades of brown and gray. Texture is silty clay or clay. Content of black and brown concretions in the profile ranges from none to many. Reaction is strongly acid or very strongly acid, except for the surface layer in areas that have been limed.

Tippah soils are associated with Adaton, Falkner, Sweatman, and Wilcox soils. They are better drained and not so gray as Adaton soils. They are redder in the upper part of the Bt horizon than Falkner soils. Tippah soils are not so clayey in the upper 20 inches of the Bt horizon as the Sweatman and Wilcox soils.

Tippah silt loam, 2 to 5 percent slopes (TnB).—This soil is on ridgetops. Included in mapping are small areas of Adaton, Falkner, and Wilcox soils.

The surface layer is dark grayish-brown silt loam about 5 inches thick. The subsoil, to a depth of about 30 inches, is yellowish-red silty clay loam; below this it is silty clay mottled in shades of brown and gray.

Reaction is strongly acid or very strongly acid. The available water capacity is high. Water moves through the upper part of the subsoil at a moderate rate, but it moves slowly through the lower part. Runoff is slow to medium, and the hazard of erosion is moderate.

This soil can be cultivated year after year if good conservation practices are followed. A suitable cropping system, contour cultivation, stripcropping, terracing, and grassed waterways are needed to control erosion. Tilth is easy to maintain, and the soil can be worked throughout a wide range of moisture content without clodding.

If adequately fertilized and limed, this soil is suited to cotton, corn, soybeans, and pasture plants. It is also suited to adapted hardwoods and pine trees. Most areas are used for row crops or pasture. (Capability unit IIe-4; woodland group 3o7)

Tippah silt loam, 5 to 8 percent slopes (ThC).—This soil is on upper side slopes. Rills are in some areas. This soil has the profile described as representative for the series. Included in mapping are small areas of Adaton, Falkner, and Wilcox soils.

Reaction is strongly acid or very strongly acid. The available water capacity is high. Water moves through the upper part of the subsoil at a moderate rate, but it moves slowly in the lower part. Runoff is medium, and the hazard of erosion is moderate.

Row crops can be grown each year if management includes using a suitable cropping system, cultivating on the contour, terracing, stripcropping, and using grassed waterways. Tilth can be maintained through the proper use of crop residue. A plowpan can form if the depth of plowing is not varied.

If adequately fertilized and limed, this soil is suited to cotton, corn, soybeans, and pasture plants. It is also suited to pine trees and adapted hardwoods. About the same acreage is used for each of the following: woodland, pasture, and row crops. (Capability unit IIIe-6; woodland group 3o7)

Trebloc Series

The Trebloc series consists of poorly drained soils. These soils formed in medium-textured to moderately fine textured material. Slopes are 0 to 2 percent.

In a representative profile the surface layer is dark grayish-brown loam about 6 inches thick. The upper part of the subsoil, to a depth of about 21 inches, is gray loam mottled in shades of brown. The lower part of the subsoil, which reaches to a depth of more than 60 inches, is gray clay loam mottled in shades of brown.

Representative profile of Trebloc loam, in a 30-acre area that has been used for soybeans, 1 mile south of the northeast corner of the county, SE¼SE¼ sec. 1, 12 S., R. 5 E.

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) loam; weak, fine, granular structure; friable; common fine roots; very strongly acid; abrupt, smooth boundary.

B21tg—6 to 11 inches, gray (10YR 6/1) loam; few, medium, distinct, dark-brown (7.5YR 4/4) mottles; weak, medium, subangular blocky structure; friable; few fine roots and root stains; bridgings and coatings of sand grains with clay, but a few pockets of sand grains are uncoated; strongly acid; gradual, wavy boundary.

B22tg—11 to 21 inches, gray (10YR 6/1) loam; common, medium, distinct, strong-brown (7.5YR 5/6) mottles; firm, plastic and sticky; few fine roots; bridgings and coatings of sand grains with clay, but a few pockets of sand grains are uncoated; strongly acid; clear, wavy boundary.

B23tg—21 to 29 inches, gray (10YR 6/1) clay loam; common, medium, distinct, strong-brown (7.5YR 5/6) mottles; weak, medium, subangular blocky structure; firm, plastic and sticky; few fine roots; bridgings and

coatings of sand grains with clay; strongly acid; clear, wavy boundary.

B24tg—29 to 60 inches, gray (10YR 6/1) clay loam; common, medium, distinct, yellowish-brown (10YR 5/6) mottles; firm, plastic and sticky; few fine roots; bridgings and coatings of sand grains with clay; strongly acid.

The Ap horizon ranges from dark gray to dark grayish brown or grayish brown. The Bg horizon is gray to light brownish gray and is mottled in shades of brown. Its texture is loam, silty clay loam, or clay loam. The upper 20 inches of the B horizon is 18 to 35 percent clay, 35 to 55 percent silt, and less than 15 percent fine sand and very coarse sand. The content of brown and black concretions ranges from few to many. Reaction throughout the profile is strongly acid or very strongly acid, except in the surface layer in areas that have been limed.

Trebloc soils are associated with Brewton, Mashulaville, and Prentiss soils. They are more poorly drained than the Brewton and Prentiss soils, which are less clayey and have a fragipan. Trebloc soils are similar to Mashulaville soils in drainage, but they do not have a fragipan.

Trebloc loam (Tr).—This nearly level soil is on uplands and stream terraces. Included in mapping are small areas of Brewton, Mashulaville, and Prentiss soils.

Reaction is strongly acid or very strongly acid. Water moves through this soil at a moderately slow rate. The available water capacity is high. This soil crusts and packs if left bare.

Because this soil is wet, it is poorly suited to row crops. If it is cropped, surface field ditches and graded rows are needed to remove excess surface water.

This soil is better suited to trees than to pasture or field crops, but it can be used to grow pasture plants if it is drained and adequately fertilized. Most of the acreage is in trees, but some areas are in pasture or hay. (Capability unit IVw–1; woodland group 2w9)

Una Series

The Una series consists of poorly drained soils on flood plains. These soils formed dominantly in fine-textured alluvium. Slopes are 0 to 2 percent.

In a representative profile the surface layer is dark grayish-brown silty clay loam about 4 inches thick. The upper part of the subsoil, to a depth of about 13 inches, is light brownish-gray silty clay loam mottled with yellowish red. The lower part of the subsoil is gray silty clay loam and silty clay that is mottled with strong brown and that extends to a depth of 48 inches or more.

Representative profile of Una silty clay loam, in an idle area, 1 mile east of Okolona and 3.5 miles north of State Highway 41, near the Monroe County line, SE¼NE¼ sec. 12, T. 12 S., R. 5 E.

Ap—0 to 4 inches, dark grayish-brown (10YR 4/2) silty clay loam; few, medium, faint, gray (10YR 6/1) mottles; weak, fine, granular structure; friable; common fine roots; strongly acid; abrupt, smooth boundary.

B21g—4 to 13 inches, light brownish-gray (10YR 6/2) silty clay loam; common, medium, prominent, yellowish-red (5YR 5/8) mottles; weak, medium, subangular blocky structure: firm, plastic and sticky; few black and brown concretions; few fine roots; strongly acid; clear, smooth boundary.

B22g—13 to 23 inches, gray (10YR 6/1) silty clay loam; common, medium, prominent, strong-brown (7.5YR 5/8) mottles; weak, medium, subangular blocky structure; firm, plastic and sticky; few black and brown concretions; few fine roots; strongly acid clear, smooth boundary

B23g—23 to 48 inches, gray (10YR 6/1) silty clay; few, medium, prominent, strong-brown (7.5YR 5/8) mottles; weak, medium, subangular blocky structure; firm, plastic and sticky; few black splotches; strongly acid.

The Ap horizon is very dark gray, dark grayish brown, very dark grayish brown, or pale brown. The Bg horizon is gray, light gray, or light brownish gray and is mottled in shades of brown and red. Texture is silty clay loam, silty clay, or clay. The upper 20 inches of the B horizon is 35 to 60 percent clay. Black and brown concretions range from few to many in this horizon. Reaction throughout the profile is strongly acid or very strongly acid, except for the surface layer in areas that have been limed.

Una soils are associated with Belden, Catalpa, and Leeper soils. They have more clay and are more acid in the B horizon than Belden soils. They are more acid and more poorly drained than the Catalpa and Leeper soils.

Una silty clay loam (Un).—This soil is on flood plains. Included in mapping are small areas of Catalpa and Leeper soils.

Reaction is strongly acid or very strongly acid. The available water capacity is high. Water moves through the soil very slowly. Runoff is slow, and the hazard of erosion is slight. Flooding occurs commonly in winter and early in spring but only occasionally during the growing season.

This soil can be row cropped year after year if good conservation is practiced. Surface field ditches and graded rows are needed to remove excess surface water. This soil shrinks and cracks as it dries. Good tilth is difficult to maintain because the soil can be cultivated within only a narrow range of moisture content.

If adequately drained and fertilized, this soil is suited to soybeans and pasture plants. Most of the acreage is cultivated or used for pasture, but a few areas are wooded. (Capability unit IIIw–4; woodland group 2w6)

Urbo Series

The Urbo series consists of somewhat poorly drained soils on flood plains. These soils formed dominantly in fine-textured alluvium. Slopes are 0 to 2 percent.

In a representative profile the surface layer is dark grayish-brown silty clay about 9 inches thick. The next layer is grayish-brown silty clay mottled with dark grayish brown to a depth of about 16 inches, grayish-brown silty clay loam mottled with very dark grayish brown to a depth of 31 inches, and silty clay loam that is mottled with shades of gray, brown, and yellow and reaches to a depth of 48 inches or more.

Representative profile of Urbo silty clay, in an idle 30-acre tract, 4 miles west of Houlka and north of State Highway 32, NE¼SW¼ sec. 9, T. 12 S., R. 2 E.

Ap—0 to 9 inches, dark grayish-brown (10YR 4/2) silty clay; weak, fine, granular structure friable; firm, sticky and plastic; many fine roots; few manganese concretions; strongly acid; clear, smooth boundary.

B21g—9 to 16 inches, grayish-brown (2.5Y 5/2) silty clay; common, medium, faint, dark grayish-brown (10YR 4/2) mottles; weak, fine, angular and subangular blocky structure; firm, plastic and sticky; few fine roots; few manganese concretions; strongly acid; gradual, smooth boundary.

B22g—16 to 31 inches, grayish-brown (2.5Y 5/2) silty clay loam; common, medium, distinct, very dark grayish-brown (10YR 3/2) mottles; moderate, fine and medium, angular and subangular blocky structure; firm, plastic and sticky; few fine roots; many fine manganese concretions; strongly acid; gradual, smooth boundary.

B23g—31 to 48 inches, mottled grayish-brown (10YR 5/2) and dark yellowish-brown (10YR 4/4) silty clay loam; moderate, fine and medium, angular and subangular blocky structure; firm, plastic and sticky; few fine roots; very strongly acid.

The Ap horizon is dark grayish brown, grayish brown, or brown. The B21g and B22g horizons are grayish brown or brown mottled with dark grayish brown. Texture of the B horizon is silty clay loam, silty clay, or clay. The clay content between depths of 10 and 40 inches ranges from 35 to 55 percent. The B23g horizon is mottled grayish brown and dark yellowish brown or has matrix colors of grayish brown or light brownish gray. Reaction throughout the profile is strongly acid or very strongly acid, except for the surface layer in areas that have been limed.

Urbo soils are associated with Arkabutla, Marietta, and Rosebloom soils. They have drainage similar to that of the Arkabutla soils, but they are more clayey in the B horizon. They are not so well drained as the Marietta soils, are more acid, and have a more clayey profile. Urbo soils are not so gray as the Rosebloom soils and have a more clayey subsoil.

Urbo silty clay (Ur).—This soil is on flood plains. Included in mapping are small areas of Arkabutla and Rosebloom soils.

Reaction is strongly acid or very strongly acid. The available water capacity is high. Water moves through the soil at a slow to moderately slow rate. Runoff is slow, and the hazard of erosion is slight in cultivated areas. Flooding occurs commonly in winter and early in spring but only occasionally during the growing season.

This soil can be row cropped year after year if good conservation is practiced. Surface field ditches and graded rows are needed to remove excess surface water. The soil is hard to keep in good tilth. It can be cultivated only within a narrow range of moisture content.

If adequately drained and fertilized, this soil is suited to cotton, corn, soybeans, and pasture plants. Most areas are cultivated or used for pasture, but a few are wooded. (Capability unit IIw-5; woodland group 1w8)

Wilcox Series

The Wilcox series consists of somewhat poorly drained soils on uplands. These soils formed in fine-textured material. Slopes are 2 to 17 percent.

In a representative profile the surface layer is very dark gray silt loam about 4 inches thick. The subsoil, to a depth of about 19 inches, is strong-brown to reddish-brown silty clay mottled with gray. Below this, and extending to a depth of about 45 inches, it is gray clay mottled with red and strong brown. The underlying material, to a depth of about 54 inches, is light yellowish-brown clay mottled with gray. Light olive-gray soft shale is at a depth of 54 inches.

Representative profile of Wilcox silt loam, 2 to 5 percent slopes, in a 20-acre tract used for timber, 4.2 miles south of Pontotoc County line and 1 mile east of the Calhoun County line, NW¼NW¼ sec. 29, T. 12 S., R. 2 E.

Ap—0 to 4 inches, very dark gray (10YR 3/1) silt loam; weak, fine, granular structure; friable; many fine roots; strongly acid; clear, smooth boundary.

B21t—4 to 10 inches, strong-brown (7.5YR 5/6) silty clay; common, medium, distinct, gray (10YR 6/1) mottles; moderate, medium, subangular blocky structure; firm, plastic and sticky; clay films or pressure faces on peds; few fine roots; strongly acid; clear, smooth boundary.

B22t—10 to 19 inches, reddish-brown (5YR 5/4) silty clay; many, medium, distinct, gray (10YR 6/1) and red (2.5YR 4/6) mottles; strong, fine and medium, angular blocky structure; firm, plastic and sticky; few fine roots; clay films or pressure faces on peds; strongly acid; clear, smooth boundary.

B23tg—19 to 35 inches, mottled gray (10YR 6/1) and red (2.5YR 4/6) clay; moderate, medium, angular and subangular blocky structure; firm, plastic and sticky; clay films or pressure faces on peds; many slickensides; strongly acid; clear, smooth boundary.

B3tg—35 to 45 inches, gray (10YR 6/1) clay; common, medium, distinct, red (2.5YR 4/6) and strong-brown (7.5YR 5/6) mottles; weak, medium, angular and subangular blocky structure; firm, plastic and sticky; few slickensides; strongly acid; clear, smooth boundary.

Cg—45 to 54 inches, light yellowish-brown (10YR 6/4) clay; common, medium, distinct, gray (10YR 6/1) mottles; weak, medium, angular and subangular blocky structure; firm, plastic and sticky; many slickensides; strongly acid; abrupt, wavy boundary.

R—54 to 65 inches, light olive gray (5Y 6/2) soft shale.

The Ap horizon is very dark gray, dark-gray, dark grayish-brown, or brown silt loam or silty clay loam 3 to 4 inches thick. The B horizon has strong-brown to reddish-brown matrix colors with few to common, gray mottles, or it is mottled in shades of yellow, red, or gray. In some profiles the lower part of the B horizon has a gray matrix color and is mottled. Texture is clay loam, silty clay, or clay. In the upper 20 inches of the B horizon, the clay content ranges from 38 to 60 percent. Soft shale is at a depth of 30 to 58 inches. Reaction is strongly acid or very strongly acid, except in the surface layer in areas that have been limed.

Wilcox soils are associated with Adaton, Falkner, Mayhew, Sweatman, and Tippah soils. Wilcox soils contain more clay and are redder in the upper part of the B horizon than Adaton and Falkner soils. They are better drained and are redder in the upper part of the B horizon than Mayhew soils. They are more poorly drained than the Sweatman soils. Wilcox soils have more clay in the upper part of the B horizon than Tippah soils.

Wilcox silt loam, 2 to 5 percent slopes (WcB).—This soil is on ridgetops. It has the profile described as representative for the series. Included in mapping are small areas of Falkner, Mayhew, and Tippah soils.

Reaction is strongly acid or very strongly acid. The available water capacity is high. Water moves through this soil very slowly. Runoff is slow to medium, and the hazard of erosion is moderate in cultivated areas.

Where cultivated, this soil should be protected from erosion. Good management includes using a suitable cropping system, cultivating on the contour, stripcropping, terracing, and using grassed waterways. The soil shrinks and cracks as it dries. Tilth can be maintained by the proper use of crop residue.

If adequately fertilized, this soil is suited to soybeans and pasture plants. Most areas are used for row crops or pasture. (Capability unit IIIe-7; woodland group 3c2)

Wilcox silty clay loam, 5 to 8 percent slopes (WlC).—This soil is on ridgetops and upper side slopes. Included in mapping are small areas of Falkner and Tippah soils.

The surface layer is dark-gray silty clay loam about 3 inches thick. The subsoil is strong-brown silty clay or clay mottled with gray.

Reaction is strongly acid or very strongly acid. The available water capacity is high. Water moves through this soil very slowly. Runoff is medium, and the hazard of erosion is moderate in cultivated areas.

If this soil is cultivated, it is moderately susceptible to erosion. It can be cultivated about one-fourth of the time if good conservation is practiced. The soil shrinks and cracks as it dries. Tilth can be maintained through proper use of crop residue. The soil can be cultivated within only

a narrow range of moisture content. Using a suitable cropping system, cultivating on the contour, stripcropping, terracing, and using grassed waterways help to control erosion.

Oats and pasture plants are suited to this soil if it is adequately fertilized. Pine trees are also suited. Most of the acreage is used for pasture. (Capability unit IVe–2; woodland group 3c2)

Wilcox silty clay loam, 8 to 17 percent slopes, eroded (WlE2).—This soil is on side slopes. Rills and a few shallow gullies are common in most areas.

The surface layer is dark grayish-brown silty clay loam about 3 inches thick. The subsoil is silty clay mottled in shades of yellow, red, and gray.

Reaction is strongly acid or very strongly acid. Available water capacity is high. Water moves through this soil very slowly. Runoff is rapid, and erosion is a severe hazard. A permanent cover of plants is needed to control erosion.

This soil is suited to pine trees and pasture plants. Because of the slope and the hazard of further erosion, the soil is better suited to trees than to field crops or pasture. It is mainly in trees, but some areas have been cleared and are mainly in pasture. (Capability unit VIIe–2; woodland group 3c2)

Use and Management of the Soils

This section briefly discusses use of the soils for crops and tame pastures and describes use of the soils as woodland, for wildlife, and for engineering purposes. It also gives facts about use of the soils in town and country planning.

Management for Crops and Tame Pastures

This section describes general practices of soil management and explains the system of capability classification used by the Soil Conservation Service. It also contains a table that gives estimated yields of the commonly grown crops and pasture grasses under a high level of management.

General practices of management [2]

Cultivation reduces the organic-matter content, causes the leaching out of plant nutrients, and increases the hazard of soil erosion. A suitable cropping system is needed to maintain the organic-matter content, to control erosion, and to increase the fertility of the soils.

Close-growing or sod crops and annual cover crops grown in sequence with row crops help to maintain the organic-matter content, control erosion, and build up the fertility of the soils. The length of time that cover is needed in proportion to the length of time that a row crop is grown depends on the kind of soil, the slope, and the hazard of erosion.

Fertilizer is needed on all soils used for crops.

Crop residue should be shredded following harvest and left on the surface or, if the soil is subject to flooding, disked into the surface layer. The need for fertilizer differs according to the soil and the type of crop. Soil tests help to determine the correct amount and kind of fertilizer to add. For further information, consult the local Extension Service office and the Mississippi Agricultural Experiment Station.

Surface and internal drainage is a concern on some of the soils in the county. Drainage mains and laterals that have surface field drains leading into them are needed to solve these difficulties. Diversions are needed to protect the bottom lands against excessive runoff from hills. Contour cultivation is needed in the gently sloping fields to control erosion and conserve moisture.

Good, well-managed sod of grasses and legumes protects the soil from erosion, provides forage and feed for livestock, and builds up the organic-matter content of the soil.

The soils of Chickasaw County are suited to many kinds of grasses and legumes; some soils are better suited than others. Information on best suited plants and combination of plants for individual soils is available from the local Soil Conservation Service office. The type of livestock enterprise and the individual needs of the farmer should be considered also.

Perennial grasses that are widely adapted to the soils are common bermudagrass, Coastal bermudagrass, bahiagrass, dallisgrass, and tall fescue. Legumes that are well adapted are white clover, wild winter peas, annual lespedeza, and sericea lespedeza.

Regular additions of fertilizer and lime are beneficial to all soils used for pasture. The amount and analysis of fertilizer and the frequency of application should be determined by soil tests.

Grasses and legumes grow better and produce more forage if overgrazing is prevented by proper stocking and rotation grazing.

Capability grouping

Capability grouping shows, in a general way, the suitability of soils for most kinds of field crops. The soils are grouped according to their limitations when used for field crops, the risk of damage when they are used, and the way they respond to treatment. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils; does not take into consideration possible but unlikely major reclamation projects; and does not apply to rice, cranberries, horticultural crops, or other crops requiring special management.

Those familiar with the capability classification can infer from it much about the behavior of soils when used for other purposes, but this classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for range, for forest trees, or for engineering.

In the capability system, the kinds of soil are grouped at three levels: the capability class, the subclass, and the unit. These are discussed in the following paragraphs.

CAPABILITY CLASSES, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use.

[2] H. S. SAUCIER, agronomist, Soil Conservation Service, assisted in preparation of this section.

CAPABILITY SUBCLASSES are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, but not in Chickasaw County, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only the subclasses indicated by *w*, *s*, and *c*, because the soils in class V are subject to little or no erosion, though they have other limitations that restrict their use largely to pasture, woodland, wildlife habitat, or recreation.

CAPABILITY UNITS are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe 4 or IIIe–6. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation; the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraph; and the Arabic numeral specifically identifies the capability unit within each subclass.

In the following paragraphs, the capability classes and subclasses used in the capability grouping and the capability units in Chickasaw County are described.

Class I soils have few limitations that restrict their use. (No subclasses)
- Unit I–1. Well-drained soils that have slopes of 0 to 2 percent; on uplands.

Class II soils have moderate limitations that reduce the choice of plants, or they require moderate conservation practices.
- Subclass IIe. Soils subject to moderate erosion if they are not protected.
  - Unit IIe–1. Well-drained loamy soils that are high in content of silt and have slopes of 2 to 5 percent.
  - Unit IIe–2. Well-drained loamy soils that have slopes of 2 to 5 percent.
  - Unit IIe–3. Moderately well drained loamy soils that have a fragipan and have slopes of 2 to 5 percent.
  - Unit IIe–4. Moderately well drained soils that are clayey in the lower part of the subsoil and have slopes of 2 to 5 percent.
- Subclass IIw. Soils that have moderate limitations because of excess water.
  - Unit IIw–1. Moderately well drained loamy soils that have a fragipan and have slopes of 0 to 2 percent.
  - Unit IIw–2. Somewhat poorly drained soils that are clayey below the surface layer and have slopes of 0 to 2 percent; on uplands.
  - Unit IIw–3. Moderately well drained and well drained loamy soils on flood plains.
  - Unit IIw–4. Somewhat poorly drained and moderately well drained, medium acid to moderately alkaline soils that have a clayey subsoil; on flood plains.
  - Unit IIw–5. Somewhat poorly drained, strongly acid or very strongly acid soils that have a clayey subsoil; on flood plains.
  - Unit IIw–6. Somewhat poorly drained, slightly acid to very strongly acid loamy soils; on flood plains.
- Subclass IIs. Soils that have moderate limitations of moisture capacity or tilth.
  - Unit IIs–1. Well-drained clayey soils that have slopes of 0 to 2 percent; on uplands.

Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.
- Subclass IIIe. Soils subject to severe erosion if they are cultivated and not protected.
  - Unit IIIe–1. Well-drained loamy soils that are high in content of silt and have slopes of 5 to 8 percent.
  - Unit IIIe 2. Well-drained loamy soils that have slopes of 5 to 8 percent.
  - Unit IIIe–3. Somewhat poorly drained, slightly acid to mildly alkaline, clayey soils that have slopes of 2 to 5 percent.
  - Unit IIIe 4. Well-drained, clayey soils that are neutral or moderately alkaline and have slopes of 2 to 5 percent.
  - Unit IIIe 5. Moderately well drained loamy soils that have a fragipan and have slopes of 5 to 8 percent.
  - Unit IIIe 6. Moderately well drained soils that are clayey in the lower part of the subsoil and have slopes of 5 to 8 percent.
  - Unit IIIe–7. Somewhat poorly drained, strongly acid or very strongly acid soils that have a clayey subsoil and have slopes of 2 to 5 percent.
  - Unit IIIe–8. Somewhat poorly drained, medium acid or strongly acid soils that overlie chalk and have slopes of 2 to 5 percent.
- Subclass IIIw. Soils that have severe limitations because of excess water.
  - Unit IIIw–1. Poorly drained, strongly acid or very strongly acid soils that have slopes of 0 to 3 percent; on uplands.
  - Unit IIIw 2. Somewhat poorly drained, strongly acid or very strongly acid soils that are clayey in the lower part of the subsoil and have slopes of 0 to 3 percent; on uplands.
  - Unit IIIw–3. Somewhat poorly drained soils that have a fragipan and have slopes of 0 to 3 percent.
  - Unit IIIw–4. Poorly drained, strongly acid or very strongly acid soils; on flood plains.

Class IV soils have very severe limitations that reduce the choice of plants, require very careful management, or both.

Subclass IVe. Soils subject to severe erosion if they are cultivated and not protected.

Unit IVe–1. Moderately well drained, severely eroded soils that have a fragipan and have slopes of 5 to 8 percent.

Unit IVe–2. Somewhat poorly drained, strongly acid or very strongly acid soils that have a clayey subsoil and have slopes of 5 to 8 percent.

Unit IVe–3. Somewhat poorly drained, severely eroded soils that overlie chalk and have slopes of 2 to 5 percent.

Subclass IVw. Soils that have very severe limitations for cultivation because of excess water.

Unit IVw–1. Poorly drained, strongly acid or very strongly acid, loamy soils that have slopes of 0 to 2 percent.

Class V soils are subject to little or no erosion but have other limitations, impractical to remove, that limit their use largely to pasture, woodland, or wildlife habitat. (None in Chickasaw County)

Class VI soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture, woodland, or wildlife habitat.

Subclass VIe. Soils severely limited chiefly by risk of erosion if protective cover is not maintained.

Unit VIe–1. Well-drained, severely eroded soils that have slopes of 8 to 17 percent.

Unit VIe–2. Moderately well drained, severely eroded soils that have a fragipan and have slopes of 8 to 12 percent.

Unit VIe–3. Somewhat poorly drained, severely eroded soils that have slopes of 5 to 12 percent.

Unit VIe–4. Well-drained, severely eroded soils that overlie chalk and have slopes of 2 to 8 percent.

Unit VIe–5. Well-drained and somewhat poorly drained, severely eroded soils that overlie chalk and have slopes of 8 to 25 percent.

Unit VIe–6. Well-drained, strongly acid or very strongly acid, clayey soils that have slopes of 8 to 12 percent.

Class VII soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture, woodland, or wildlife habitat.

Subclass VIIe. Soils very severely limited chiefly by risk of erosion if protective cover is not maintained.

Unit VIIe–1. Well-drained loamy soils that have slopes of 12 to 35 percent.

Unit VIIe–2. Somewhat poorly drained, strongly acid or very strongly acid soils that have slopes of 8 to 17 percent.

Unit VIIe–3. Well-drained soils that have a clayey subsoil and have slopes of 12 to 35 percent.

Unit VIIe–4. Gullied land and well-drained soils that have slopes of 5 to 30 percent.

Unit VIIe–5. Gullied land and well-drained soils that overlie chalk and have slopes of 8 to 25 percent.

Class VIII soils and landforms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, or water supply, or to esthetic purposes. (None in Chickasaw County)

Estimated yields

Table 2 gives estimated yields of the principal crops grown in Chickasaw County under a high level of management. These estimates were obtained from long-term records of yields of crops harvested from experimental plots on farms that cooperated in soil management studies; from Experiment Station records; from predicted yields developed by agronomists' knowledge of soils and crops of the area; and from information in the Mississippi Technical Guide developed by the Soil Conservation Service and other agricultural agencies in the State.

Data on yields obtained from experiments were adjusted to reflect the combined effect of slope, weather, and level of management. If data from experiments or other sources were not available, estimates were made by using data available for similar soils. The estimates are for nonirrigated areas under average rainfall throughout a long period.

To obtain the yields listed in table 2, the following management practices are needed: (1) application of lime and fertilizer in accordance with the needs indicated by soil tests and the recommendations of the Mississippi Agricultural and Forestry Experiment Station; (2) use of crop varieties and hybrids that give high yields and are suited to the soils, as suggested by the Mississippi Experiment Station; (3) adequate preparation of the seedbed; (4) planting or seeding by using suitable methods, seeding rates, and planting dates; (5) inoculation of legumes; (6) shallow cultivation of row crops; (7) control of weeds, insect pests, and plant diseases; (8) use of a suitable soil-conserving cropping system; (9) control of water, where necessary, by land smoothing, sodded waterways, contour cultivation, or contour stripcropping; and (10) protection of pasture from overgrazing.

Use of the Soils as Woodland [3]

This section contains information on the relationship between soils and trees. It also includes interpretations of the soils that can be used by owners of woodland, foresters, forest managers, and agricultural workers to develop and carry out plans for profitable tree farming.

Woodland products are an important source of income in this county. In 1966, saw-log production amounted to 2.26 million board feet of pine and 3.72 million board feet of hardwoods. In the same year, about 698,000 board feet of softwood veneer logs (*19*) and 23,705 standard cords of pulpwood (*4*) were produced.

Besides furnishing raw material for the wood-using industries and affording employment for hundreds of workers, the woodlands of Chickasaw County provide habitat for wildlife and offer opportunity for recreation to thousands of users annually. Moreover, these woodlands provide watershed protection, enhance the quality and value of the water resources, and furnish a limited supply of native forage for grazing animals.

[3] JOSEPH V. ZARY, forester, Soil Conservation Service, assisted in preparing this section.

TABLE 2.—*Estimated average yields per acre of principal crops grown under a high level of management*

[All estimates are for nonirrigated soils. Absence of an estimate indicates the crop is not suited to the soil or is not commonly grown on it]

Soil	Cotton (lint)	Corn	Soybeans	Oats	Pasture		
					Common bermudagrass and legumes	Bahiagrass and legumes	Fescue and legumes
	Lb.	*Bu.*	*Bu.*	*Bu.*	*A.U.M.*[1]	*A.U.M.*[1]	*A.U.M.*[1]
Adaton silt loam [2]	550	70	30	50	7.0	9.0	9.5
Arkabutla silt loam	700	95	35	75	9.8	13.3	12.0
Atwood silt loam, 0 to 2 percent slopes	750	90	40	80	8.5	12.5	10.0
Atwood silt loam, 2 to 5 percent slopes	700	90	35	80	8.5	12.5	10.0
Atwood silt loam, 5 to 8 percent slopes, eroded	600	80	30	78	8.5	12.5	9.5
Atwood silt loam, 8 to 17 percent slopes, severely eroded					6.0	8.0	
Belden silty clay loam	650	80	35		7.0		9.0
Brewton fine sandy loam		60	35	50	6.0	7.0	8.0
Brooksville silty clay, 0 to 2 percent slopes	675	60	25	80	8.0	10.0	9.0
Brooksville silty clay, 2 to 5 percent slopes	625	50	25	70	8.0	9.5	8.5
Cahaba fine sandy loam, 12 to 35 percent slopes							
Catalpa silty clay loam	750	85	40	80	8.0		11.0
Demopolis silty clay loam, 2 to 8 percent slopes, severely eroded					4.0		
Demopolis-Kipling complex, 8 to 25 percent slopes, severely eroded					4.0		
Falkner silt loam [2]	575	55	30	60	7.0	10.0	8.0
Gullied land-Demopolis complex, 8 to 25 percent slopes							
Gullied land-Ruston complex, 5 to 30 percent slopes							
Kipling silt loam, 0 to 2 percent slopes	500	50	35	55	6.0	7.0	7.0
Kipling silt loam, 2 to 5 percent slopes, eroded	475	50	35	55	5.5	6.0	6.0
Kipling silt loam, 5 to 8 percent slopes, eroded	450	45	30	50	5.0	5.5	5.5
Kipling silty clay loam, 2 to 5 percent slopes, severely eroded					6.5	7.0	7.0
Kipling silty clay, 5 to 12 percent slopes, severely eroded					5.0	5.5	5.5
Leeper silty clay loam	750	80	40	55	8.5		11.0
Marietta fine sandy loam	700	80	35	70	8.0	10.0	11.0
Mashulaville loam			20		5.0	7.0	7.0
Mayhew silt loam [2]			30	50	6.5	8.0	8.0
Okolona clay, 0 to 2 percent slopes	700	60	30	80	6.5		7.0
Okolona clay, 2 to 5 percent slopes	650	55	25	70	6.5		6.5
Ora loam, 2 to 5 percent slopes	750	80	35	60	7.0	9.0	8.0
Ora loam, 5 to 8 percent slopes	600	70	30	60	7.0	8.5	8.0
Ora loam, 5 to 8 percent slopes, severely eroded	450				6.0	6.0	5.5
Ora loam, 8 to 12 percent slopes, severely eroded					5.0	5.5	
Prentiss fine sandy loam, 0 to 2 percent slopes	750	80	35	70	7.0	9.0	8.0
Prentiss fine sandy loam, 2 to 5 percent slopes	750	80	35	70	7.0	8.5	8.0
Robinsonville and Marietta soils	750	90	35	70	9.0		12.0
Rosebloom fine sandy loam, sandy variant	475	60	25		6.5	9.0	7.0
Rosebloom silt loam	475	60	30		6.5	8.0	6.0
Ruston fine sandy loam, 2 to 5 percent slopes	650	75	30	60	8.5	10.0	9.5
Ruston fine sandy loam, 5 to 8 percent slopes, eroded	600	70	30	60	8.5	10.0	9.5
Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded					5.5	8.0	
Sweatman loam, 8 to 12 percent slopes					4.5	5.5	
Sweatman loam, 12 to 35 percent slopes					4.5	5.0	
Tippah silt loam, 2 to 5 percent slopes	650	80	35		6.0	9.0	8.0
Tippah silt loam, 5 to 8 percent slopes	600	70	30		5.5	8.5	7.5
Trebloc loam					5.0	6.0	6.0
Una silty clay loam			25		7.5		9.5
Urbo silty clay	650	80	30		8.0		10.0
Wilcox silt loam, 2 to 5 percent slopes		40	30	35	5.0	8.0	7.5
Wilcox silty clay loam, 5 to 8 percent slopes				30	4.5	7.0	7.0
Wilcox silty clay loam, 8 to 17 percent slopes, eroded					4.0	6.0	6.0

[1] Animal-unit-months is the number of months in a year that 1 cow, steer, or horse; 5 hogs; or 7 sheep or goats can graze 1 acre under a high level of management without damage to the pasture.

[2] The estimated yield of sweetpotatoes from Adaton silt loam is 225 bushels per acre; from Falkner silt loam, 300 bushels; and from Mayhew silt loam, 225 bushels.

492-801—74——3

Soil and tree relationships

Soil is a reservoir for moisture, and it also provides all the essential elements required for tree growth, except those derived from the atmosphere—carbon and oxygen. The many characteristics of soil, such as chemical composition, texture, structure, depth, and position, affect the growth of a tree to the extent that they affect the supply of moisture and nutrients. In many places, the relationships are indirect. The ability of a soil to supply water and nutrients to trees is strongly related to its texture and structure, as well as to its depth. Coarse-textured soils, such as sand, contain only a small amount of plant nutrients and are low in available water capacity. Many fine-textured soils, such as clay, are high in content of plant nutrients and have high available water capacity. Aeration is impeded in clay, particularly when it is wet, so that metabolic processes requiring oxygen in the roots are inhibited. Better conditions for soil moisture and aeration are provided by silvicultural practices that help to prevent the destruction of organic matter and the compaction of soil than by those that do not (*14*).

Woodland resources

An area of about 132,000 acres, or 40 percent of the total land area in Chickasaw County, is classified as commercial forest. It is divided into classes of ownership, as follows: about 47,900 acres is owned by farmers, 6,200 acres is owned by forest industries, 25,100 acres is national forest, and 53,000 acres is controlled by various private owners. The net annual growth is 6.3 million board feet of pine sawtimber, 3.5 million board feet of oak sawtimber, 0.9 million board feet of gum, and 1.4 million board feet of hardwood sawtimber (*17*). In 1966 the growing stock on commercial forest land in Chickasaw County was 348,0000 cords of pine, 3,000 cords of other softwoods, 539,000 cords of oak, 175,000 cords of gum, and 128,000 cords of other hardwood species (*17*).

Forest types

The commercial forest in Chickasaw County may be divided into four forest types, although in many places they mingle. Forest types are stands of trees that are similar in character, composed of the same species, and grown under the same ecological and biological conditions. A forest type generally is given the name of the tree or trees that are dominant in the stand (*8, 17*).

The oak-pine forest type is the most important in Chickasaw County. It is characterized by upland oaks, sweetgum, blackgum, hickory, and yellow-popular, all of which grow in mixture with loblolly and shortleaf pines. It occupies approximately 53,700 acres and is mainly in the western and northeastern parts of the county.

The oak-hickory forest type is next in importance. It is composed mainly of upland oaks and hickories, but there are a few maples, elms, and yellow-poplars. This forest type occupies about 15,100 acres and is in the northeastern and southeastern parts of the county.

The loblolly-shortleaf pine forest type is composed of tree species that grow naturally in mixtures with oaks, hickory, sweetgum, and blackgum. It occupies about 25,300 acres, mainly in the middle and east-central parts of the county, but this acreage also includes about 7,545 acres of loblolly pine plantations in the southwestern and west-central parts of the county. These pines were planted, under provisions of the Yazoo-Little Tallahatchie Flood Prevention Project, to stabilize eroded areas. The plantations are in areas drained by the headwater tributaries of the Yalobusha River.

The oak-gum-cypress forest type is composed mainly of tupelo, blackgum, bottom-land oaks, and southern cypress. It occupies about 3,100 acres on bottom lands drained by tributaries of Chuquatonchee Creek, Houlka Creek, and the Yalobusha River.

Woodland groups

To assist owners in planning the management of their woodland, the soils of Chickasaw County have been placed in 16 woodland groups. Each group is made up of soils that have about the same suitability for wood crops, that require about the same management, and that have about the same potential productivity. Table 3 shows each woodland group, briefly describes the soils, indicates the potential productivity, and gives ratings for the soil-related hazards or limitations that affect management. The "Guide to Mapping Units" at the back of this survey shows the woodland group for each mapping unit in the county. Gullied land-Demopolis complex, 8 to 25 percent slopes, and Gullied land-Ruston complex, 5 to 30 percent slopes, were not placed in a woodland group, because the soils in these complexes have extremely variable properties.

The 3-digit symbols used to designate woodland groups consist of Arabic numerals and lowercase letters and are explained in the following paragraphs.

The first digit of the group symbol indicates the woodland suitability class. It expresses site quality by an Arabic numeral ranging from 1 to 4. Class 1 is the highest in potential productivity, followed by classes 2, 3, and 4. This digit is assigned on the basis of the average site index of one or more indicator forest types or tree species.

The second digit in the symbol is a lowercase letter that indicates the suitability subclass. It is assigned on the basis of soil properties that cause moderate to severe hazards or limitations in woodland use or management as follows:

Subclass w (excessive wetness).—Soils in which excessive water, either seasonally or year long, causes significant limitations to woodland use or management. These soils have restricted drainage, a high water table, or an overflow hazard that adversely affects either the development or the management of the stand.

Subclass d (restricted rooting depth).—Soils having restrictions or limitations for woodland use or management because of restricted rooting depth. Soils that are shallow to hard rock or a hardpan are examples.

Subclass c (clayey soils).—Soils having restrictions or limitations for woodland use or management because of the kind or the amount of clay in the upper part of the soil profile. But if the symbol *c* follows the third digit, it means that the soils are suited to redcedar. Group 4c2c is an example.

Subclass o (slight or no limitations).—Soils with no significant restrictions or limitations for woodland use or management.

Subclass r (relief or slope steepness).—Soils that have restrictions or limitations for woodland use or management that are caused only by steepness.

Some kinds of soil have more than one set of subclass characteristics. Priority in assigning these kinds of soil a subclass is in the order of *w*, *d*, *c*, *o*, and *r*.

The third digit in the symbol indicates the degree of hazard or limitation, and the general suitability of the soils for certain kinds of trees. The three management hazards or limitations considered are erosion, equipment restrictions, and seedling mortality.

The *numeral 1* indicates that the soils have no limitations or only slight limitations to use for certain kinds of trees and that they are better suited to needleleaf trees than to other kinds of trees.
The *numeral 2* indicates soils that have one or more moderate limitations and that are better suited to needleleaf trees than to other kinds of trees.
The *numeral 3* indicates soils that have one or more severe limitations and that are better suited to needleleaf trees than to other kinds of trees.
The *numeral 4* indicates soils that have no limitations or only slight limitations and that are better suited to broadleaf trees than to other kinds of trees.
The *numeral 5* indicates soils that have one or more moderate limitations and that are better suited to needleleaf trees than to other kinds of trees.
The *numeral 6* indicates soils that have one or more severe limitations and that are better suited to broadleaf trees than to other kinds of trees.
The *numeral 7* indicates soils that have no limitations or only slight limitations and that are suited to either needleleaf or broadleaf trees.
The *numeral 8* indicates soils that have one or more moderate limitations and that are suited to either needleleaf or broadleaf trees.
The *numeral 9* indicates soils that have one or more severe limitations and that are suited to either needleleaf or broadleaf trees.

The column heads in table 3 are discussed briefly in the following paragraphs. The soil-related hazards and limitations are given ratings of *slight*, *moderate*, and *severe*.

Potential soil productivity refers to the capability of the soil to produce wood products. The best indicator of soil productivity is the height to which the tallest trees grow in a stated number of years. This height, in feet at a given age, is called site index. A grouping of site indexes is called site class. For all species growing in Chickasaw County, except cottonwood, site index is based on the average height, in feet, of the dominant and codominant trees at the age of 50 years. For cottonwood the site index is measured at the age of 30 years. Site indexes were determined on soil-woodland correlated studies and published research on tree growth (*12, 15, 16*).

Erosion hazard is the degree of potential soil erosion. Ratings for this hazard are based on the risk of erosion expected in well-managed woodland. These ratings are further related to differences in soil stability, permeability, slope, runoff, water storage capacity, and disturbances of vegetation. A rating of slight indicates that erosion is not an important concern and that only a small loss of soil is expected. Generally, erosion is only a slight hazard if runoff is slow or very slow. The hazard is moderate in areas where there is only medium soil loss, unless runoff is controlled and plant cover adequate to protect the soil is maintained. In these areas, some attention must be given to the control of erosion. The hazard is severe in areas where runoff is rapid or very rapid and the soils show evidence of past erosion. In these areas intensive treatments and special methods of operation must be planned and specialized equipment used to minimize soil erosion.

Equipment restriction, or trafficability, is rated on the basis of the soil characteristics that limit or prohibit the use of equipment commonly used in woods operations, such as felling, bucking, skidding, loading, and hauling. Consideration is also given to the special equipment used in spraying, tree planting, direct seeding, and firefighting. The ratings are based on such physical soil characteristics as texture, stability, plasticity, and abrasiveness, and they are further related to slope and wetness and to the presence or absence of stones, ledges, and other obstructions.

Restriction on the use of equipment is rated slight if equipment can be used the year round. The rating is moderate if the use of equipment is limited by one or more of the following factors; moderate steepness, soil wetness in winter and spring, and physical soil characteristics, such as fine-textured plastic clay. If these factors and the need for safety in operations are seriously limiting and there is a need for special equipment, then the rating is severe. Soil wetness is a more serious limitation than any of the other factors. Thus, soils that are seasonally wet or excessively wet have moderate or severe restrictions to the use of equipment. To a lesser degree, the clayey texture of some soils also imposes limitations, but such soils have moderate ratings.

Seedling mortality, or regeneration potential, refers to the failure of tree seedlings to survive and grow, chiefly because of soil characteristics or topographic position. It is assumed that plant competition and rainfall are not limiting factors. The term "tree seedlings" refers to seedlings that are naturally occurring, direct-seeded, or planted. In each of these three methods of regeneration, it is assumed that the seedlings initially established are of a species well suited to the soil and to the total site. In the case of naturally occurring seedlings, an adequate seed source, acceptable rates of seed germination, and favorable sites are further assumed. In the case of direct-seeded seedlings, acceptable rates of seed germination, proper treatment of seed with bird and rodent repellents, adequate rates of seeding, and favorable seedbeds are further assumed. In the case of planted seedlings, good quality planting stock; proper packing, handling, heeling-in or storage of seedlings; favorable planting sites; and correct planting techniques and reasonable care in planting are further assumed.

Seedling mortality is rated slight if no more than 25 percent of the seedlings initially established, in stands of 700 to 1,000 seedlings per acre, die within the first growing season. Normally, on soils rated slight there is no special management concern in securing adequately stocked stands.

Moderate indicates that losses of between 25 and 50 percent of the seedlings established can be expected. Generally, some interplanting is needed to reinforce the initial planting and bring stocking up to the desired level. Direct seeding in spots may also be needed to secure a fully or adequately stocked stand where initial direct-seeding has failed or where natural seeding was not satisfactory.

Severe indicates that seedling losses of more than 50 percent can be expected. Such losses may be expected on poor sites and especially on soils that are excessively wet. In such places, replanting or a second attempt at direct seeding may be needed to secure adequate stocking. Bedding or other special preparation of the site may also be attempted.

TABLE 3.—*Potential productivity and management hazards by woodland groups of soils*

[An asterisk in the first column indicates that at least one mapping unit in this group is made up of two or more kinds of soil, which may have different properties and productivity. For this reason the reader should follow carefully the instructions for referring to another series in this column. The GdE and GrE units were not placed in a woodland group]

Woodland group, description of soils, and map symbols	Potential soil productivity		Erosion hazard	Restriction on use of equipment	Seedling mortality	Species suitable for planting
	Preferred woodland species	Site index				
Group 1w5: Moderately well drained soils on flood plains; moderate to slow permeability; medium to high available water capacity. Ct, Ma.	Cottonwood Green ash Sweetgum	108 101 100	Slight	Moderate	Moderate	Cottonwood, sweetgum, sycamore.
Group 1w6: Somewhat poorly drained soils on flood plains; very slow permeability; high available water capacity. Le.	Cottonwood Green ash Sweetgum	110 94 95	Slight	Severe	Severe	Cottonwood, green ash, sweetgum, sycamore.
Group 1w8: Somewhat poorly drained soils on flood plains; moderate to slow permeability; high to very high available water capacity. Ar, Be, Ur.	Cottonwood Green ash Cherrybark oak Water oak Sweetgum	108 93 99 97 98	Slight	Moderate	Slight	Cottonwood, loblolly pine, cherrybark oak, Nuttal oak, sweetgum, sycamore.
Group 1o4: Well-drained soils on flood plains; moderate to moderately rapid permeability; medium available water capacity. Rm. For Marietta part of this unit, see group 1w5.	Cottonwood Green ash Sweetgum	107 87 109	Slight	Slight	Slight	Cottonwood, green ash, sweetgum, sycamore.
Group 2w6: Poorly drained soils on flood plains; very slow permeability; high available water capacity. Un.	Cottonwood Green ash Sweetgum	90 94 101	Slight	Moderate	Severe	Cottonwood, green ash, Nuttall oak, sweetgum, sycamore.
Group 2w8: Somewhat poorly drained soils on uplands; slow permeability; medium to high available water capacity. Br, Fa.	Loblolly pine Shortleaf pine Sweetgum Water oak	88 76 88 80	Slight	Moderate	Slight	Cherrybark oak, Shumard oak, loblolly pine, sweetgum.
Group 2w9: Poorly drained soils on uplands and flood plains; moderate to slow permeability; medium to very high available water capacity. Mw, Ro, Rs, Tr.	Loblolly pine Sweetgum Water oak	85 89 99	Slight	Severe	Severe	Loblolly pine, Shumard oak, sweetgum, sycamore.
Group 2c8: Somewhat poorly drained soils on uplands; very slow permeability; high available water capacity. KlA, KlB2, KlC2, KpB3, KsD3.	Loblolly pine	90	Slight	Moderate	Moderate	Cherrybark oak, loblolly pine, Shumard oak, sweetgum.

TABLE 3. *Potential productivity and management hazards by woodland groups of soils*—Continued

Woodland group, description of soils, and map symbols	Potential soil productivity		Erosion hazard	Restriction on use of equipment	Seedling mortality	Species suitable for planting
	Preferred woodland species	Site index				
Group 2o7: Moderately well drained and well drained soils on uplands; moderately slow to moderate permeability; medium to very high available water capacity. AtA, AtB, AtC2, AtD3, PnA, PnB.	Loblolly pine Shortleaf pine Sweetgum	88 79 85	Slight	Slight	Slight	Cherrybark oak, loblolly pine.
Group 3w9: Poorly drained soils on uplands; slow permeability; medium to very high available water capacity. Ad, Mh.	Loblolly pine	85	Slight	Severe	Severe	Loblolly pine, Shumard oak, sweetgum.
Group 3c2: Somewhat poorly drained and well-drained soils on uplands; moderately slow to very slow permeability; high available water capacity. SwD, SwF, WcB, WlC, WlE2.	Eastern redcedar Loblolly pine Shortleaf pine	45 81 68	Slight	Moderate	Moderate	Eastern redcedar, loblolly pine.
Group 3r3: Well-drained soils on uplands; moderate permeability; medium available water capacity. CaF.	Cherrybark oak Loblolly pine Sweetgum	90 88 90	Slight	Moderate	Slight	Cherrybark oak.
Group 3o1: Well-drained soils on uplands; moderate permeability; medium available water capacity. RuB, RuC2, RuD3.	Loblolly pine Shortleaf pine	84 75	Slight	Slight	Slight	Loblolly pine, shortleaf pine.
Group 3o7: Moderately well drained soils on uplands; moderately slow to slow permeability; medium to high available water capacity. OrB, OrC, OrC3, OrD3, ThB, ThC.	Loblolly pine Shortleaf pine Sweetgum	83 69 80	Slight	Slight	Slight	Loblolly pine, shortleaf pine, sweetgum.
Group 4c2c: Somewhat poorly drained to well-drained soils on uplands; very slow permeability; high available water capacity. BvA, BvB, OkA, OkB.	Eastern redcedar	40	Slight to moderate.	Moderate	Moderate	Eastern redcedar.
Group 4d3c: Well-drained to somewhat poorly drained soils on uplands; slow to very slow permeability; low to high available water capacity. DeC3, DkE3.	Eastern redcedar	40	Slight to moderate.	Moderate	Severe	Eastern redcedar.

Use of the Soils for Wildlife [4]

On all the soils of Chickasaw County, plant associations suited to some kinds of native wildlife are produced. Some soils support one kind or group of plant associations better than others. The information in this section can be used as a guide, but help may also be obtained from the nearest office of the Soil Conservation Service in planning a wildlife program that fits the soils and the land-use patterns.

In table 4 each of the soils in Chickasaw County is rated for its suitability to produce the elements of wildlife habitat and also for its suitability for three classes of wildlife. Ratings refer only to the suitability of the soil and do not take into account climate, present use of the soil, or distribution of wildlife and human populations. The suitability of individual sites must be determined by onsite inspection.

Ratings used in table 4 have the following meanings:

Well suited means that habitats generally are easily created, improved, or maintained; that the soil has few or no limitations that affect management; and that satisfactory results can be expected.

Suited means that habitats can be created, improved, or maintained in most places; that the soil has moderate limitations that affect management; and that moderate intensity of management and fairly frequent attention may be required for satisfactory results.

Poorly suited indicates that habitats can be created, improved, or maintained in most places; that the soil has rather severe limitations; that habitat management is difficult and expensive and requires intensive effort; and that results are not always satisfactory.

Unsuited indicates that it is impractical or impossible to create, improve, or maintain habitats and that unsatisfactory results are probable.

The column heads in table 4 are discussed in the following paragraphs.

Grasses and legumes are plants that furnish food and cover for wildlife. The rating reflects the suitability of the soil for various grasses and legumes, examples of which are fescue, clover, shrub lespedeza, annual lespedeza, soybeans, ryegrass, lovegrass, and kudzu.

Grain and seed crops are mainly farm crops that provide food for wildlife. The rating reflects the suitability of the soil, under good management, for crops. Examples of these crops are corn, proso millet, browntop millet, wheat, and oats.

Wild herbaceous plants are native or introduced perennial plants that furnish food and cover to game species. The rating reflects the suitability of the soil for these plants under natural conditions with little or no management. Examples of these plants are pokeweed, tickclover, ragweed, and doveweed.

Wetland food and cover plants are wild herbaceous plants and trees associated mainly with areas of wetland. Examples of these plants are rushes, sedges, smartweed, cattails, water tupelo-gum, swamp tupelo-gum, cypress, and Carolina ash. Ratings for this type of habitat reflect the suitability of the soil for these plants under natural conditions.

Hardwood trees and shrubs are hardwood trees, shrubs, and vines that produce fruit, buds, nuts, and foliage used by wildlife for both food and cover. Examples of these are oak, hickory, grape, autumn-olive, pyracantha, dogwood, poplar, and multiflora rose.

Openland wildlife are birds and mammals generally associated with open areas or the edges of open areas. Mourning doves, quail, foxes, cottontail rabbits, and many species of songbirds are typical examples of this kind of wildlife. Openland is also important to woodland wildlife and this interrelationship must be considered when planning a management program.

Woodland wildlife are animals that live mainly in woodland. Examples of woodland wildlife are deer, swamp rabbits, bobcats, and squirrels.

Wetland wildlife are birds and mammals that live mainly in swamps, marshes, or ponds. Examples of wetland wildlife are muskrats, mink, racoon, redwing blackbirds, and ducks.

Engineering Uses of the Soils [5]

This section is useful to those who need information about soils used as structural material or as foundation upon which structures are built. Among those who can benefit from this section are planning commissions, town and city managers, land developers, engineers, contractors, and farmers.

Among properties of soils highly important in engineering are permeability, strength, compaction characteristics, drainage, shrink-swell potential, grain size, plasticity, and reaction. Also important are depth to the water table, depth to bedrock, and slope of the soil. These properties, in various degrees and combinations, affect construction and maintenance of roads, airports, pipelines, foundations for small buildings, irrigation systems, ponds and small dams, and systems for disposal of sewage and refuse.

Information in this section of the soil survey can be helpful to those who—

1. Select potential residential, industrial, commercial and recreational areas.
2. Evaluate alternate routes for roads, highways, pipelines, and underground cables.
3. Seek sources of gravel, sand, or clay.
4. Plan farm drainage systems, irrigation systems, ponds, terraces, and other structures for controlling water and conserving soil.
5. Correlate performance of engineering structures with the soils and thus develop information that will be useful in designing and maintaining the structures.
6. Determine the suitability of soil mapping units for cross-country movement of vehicles and construction equipment.
7. Supplement the information obtained from other published maps and reports and aerial photographs for the purpose of preparing maps and reports that can be used readily by engineers.
8. Develop other preliminary estimates for construction purposes pertinent to the area.

---

[4] EDWARD G. SULLIVAN, biologist, Soil Conservation Service, prepared this subsection.

[5] VICTOR L. BYRD, agricultural engineer, Soil Conservation Service, assisted in preparing this section.

Most of the information in this section is given in tables. Table 5 shows the results of engineering laboratory tests on soil samples; table 6, the estimates of soil properties significant to engineering; and table 7, the interpretations for various engineering uses.

This information, however, does not eliminate the need for further investigations at sites selected for engineering works, especially works that involve heavy loads or that require excavations to depths greater than those shown in the tables, generally depths greater than 6 feet. Also, inspection of sites, especially the small ones, is needed because many delineated areas of a given soil mapping unit may contain small areas of other kinds of soil that have strongly contrasting properties and different suitabilities or limitations for soil engineering.

Some of the terms used in this soil survey have special meaning to soil scientists that is not known to all engineers. The Glossary defines many of these terms commonly used in soil science.

Engineering classification systems

The two systems most commonly used in classifying samples of soils for engineering are the Unified system (*18*) used by the Soil Conservation Service engineers, Department of Defense, and others, and the AASHO system adopted by the American Association of State Highway Officials(*1*, *5*).

In the Unified system, soils are classified according to particle-size distribution, plasticity, liquid limit, and organic-matter content. Soils are grouped in 15 classes. There are eight classes of coarse-grained soils, identified as GW, GP, GM, GC, SW, SP, SM, and SC; six classes of fine-grained soils, identified as ML, CL, OL, MH, CH, and OH; and one class of highly organic soils, identified as Pt.

The AASHO system is used to classify soils according to those properties that affect use in highway construction and maintenance. In this system, a soil is placed in one of seven basic groups ranging from A–1 through A–7 on the basis of grain-size distribution, liquid limit, and plasticity index. In group A–1 are gravelly soils of high bearing strength, or the best soils for subgrade (foundation). At the other extreme, in group A–7 are clay soils that have low strength when wet, or the poorest soils for subgrade. Where laboratory data are available to justify a further breakdown, the A–1, A–2, and A–7 groups are divided as follows: A–1–a, A–1–b, A–2–4, A–2–5, A–2–6, A–2–7, A–7–5, and A–7–6. As additional refinement, the engineering value of a soil material can be indicated by a group index number. Group indexes range from 0 for the best material to 20 or more for the poorest.

Soil test data

Table 5 contains engineering test data for the Brooksville series. These tests were made to help evaluate the soils for engineering purposes. The engineering classifications given are based on data obtained by mechanical analyses and by tests to determine liquid limits and plastic limits. The mechanical analyses were made by combined sieve and hydrometer methods.

Moisture-density (compaction) data are important in earthwork. If a soil material is compacted at successively higher moisture content, assuming that the compactive effort remains constant, the density of the compacted material increases until the optimum moisture content is reached. After that, density decreases with increase in moisture content. The highest dry density obtained in the compactive test is termed "maximum dry density." As a rule, maximum strength of earthwork is obtained if the soil is compacted to the maximum dry density.

Liquid limit and plasticity index indicate the effect of water on the strength and consistence of soil material. As the moisture content of a clayey soil is increased from a dry state, the material changes from a semisolid to a plastic state. If the moisture content is further increased, the material changes from a plastic to a liquid state. The plastic limit is the moisture content at which the soil material changes from the semisolid to plastic state; and the liquid limit, from a plastic to a liquid state. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil material is plastic.

Soil properties significant to engineering

Several estimated soil properties significant in engineering are given in table 6. These estimates are made for typical soil profiles, by layers sufficiently different to have different significance for soil engineering. The estimates are based on field observations made in the course of mapping, on test data for these and similar soils, and on experience with the same kinds of soil in other counties. Following are explanations of some of the column heads in table 6.

Most soils in this county are deep enough that bedrock generally does not affect their use. Chalk is at a depth of 10 inches in the Demopolis soils and at a depth of about 48 inches in the Kipling and Okolona soils. Soft shale is at a depth of about 54 inches in the Wilcox soils.

Depth to a seasonal high water table is the distance from the surface of the soil to the highest level that ground water reaches in the soil in most years.

Classification of soil texture is given in table 6 in the standard terms used by the Department of Agriculture. These terms take into account the relative percentages of sand, silt, and clay in soil material that has particles less than 2 millimeters in diameter. Loam, for example, is soil material that contains 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the soil contains gravel or other fragments coarser than sand particles, an appropriate modifier is added, as for example, gravelly loamy sand. "Sand," "silt," "clay," and some of the other terms used in USDA textural classification are defined in the Glossary of this soil survey.

Permeability is that quality of a soil that enables it to transmit water or air. It is estimated on basis of those soil characteristics observed in the field, particularly structure and porosity. The estimates in table 6 do not take into account lateral seepage or such transient soil features as plowpans and surface crusts.

Available water capacity, estimated in inches per inch of soil, is the ability of soils to hold water for use by most plants. It is commonly defined as the difference between the amount of water held in the soil at field capacity and the amount held at the wilting point of most crop plants.

Reaction is the degree of acidity or alkalinity of a soil, expressed in pH values. Knowledge of reaction is useful if a pipeline is to be constructed, for it indicates, among other things, the likelihood of corrosion. The pH value and terms used to describe soil reaction are explained in the Glossary.

TABLE 4. *Suitability of soils for wildlife*

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or more kinds of soil, which may that appear in the first

Soil series and map symbols	Elements of wildlife habitat		
	Grasses and legumes	Grain and seed crops	Wild herbaceous plants
Adaton: Ad	Suited	Poorly suited	Suited
Arkabutla: Ar	Suited	Suited	Well suited
Atwood:			
AtA, AtB	Well suited	Well suited	Well suited
AtC2	Well suited	Suited	Well suited
AtD3	Suited	Poorly suited	Well suited
Belden: Be	Suited	Suited	Well suited
Brewton: Br	Suited	Suited	Well suited
Brooksville:			
BvA	Well suited	Suited	Well suited
BvB	Well suited	Suited	Well suited
Cahaba: CaF	Poorly suited	Unsuited	Well suited
Catalpa: Ct	Well suited	Well suited	Well suited
*Demopolis: DeC3, DkE3 For Kipling part of DkE3, see Kipling series, KsD3 unit.	Poorly suited	Unsuited	Poorly suited
Falkner: Fa	Suited	Suited	Well suited
Gullied land-Demopolis complex: GdE. Too variable to estimate.			
Gullied land-Ruston complex: GrE. Too variable to estimate.			
Kipling:			
KlA	Well suited	Well suited	Well suited
KlB2	Well suited	Well suited	Well suited
KlC2	Suited	Suited	Well suited
KpB3	Suited	Suited	Suited
KsD3	Suited	Poorly suited	Suited
Leeper: Le	Well suited	Well suited	Well suited
Marietta: Ma	Well suited	Well suited	Well suited
Mashulaville: Mh	Suited	Poorly suited	Suited
Mayhew: Mw	Suited	Poorly suited	Suited
Okolona:			
OkA	Suited	Suited	Suited
OkB	Suited	Suited	Suited
Ora:			
OrB	Well suited	Well suited	Well suited
OrC	Well suited	Suited	Well suited
OrC3, OrD3	Suited	Poorly suited	Suited
Prentiss:			
PnA	Well suited	Well suited	Well suited
PnB	Well suited	Well suited	Well suited
*Robinsonville: Rm For Marietta part of this unit, see Marietta series.	Well suited	Well suited	Well suited
Rosebloom:			
Ro	Suited	Poorly suited	Suited
Rs	Suited	Poorly suited	Suited

habitat and stated kinds of wildlife

have different properties and suitabilities. For this reason the reader should follow carefully the instructions for referring to other series column of this table]

Elements of wildlife habitat—Continued			Kinds of wildlife		
Wetland food and cover plants	Hardwood trees and shrubs	Shallow water developments	Openland	Woodland	Wetland
Well suited	Well suited	Well suited	Suited	Suited	Well suited.
Suited	Well suited	Suited	Suited	Well suited	Suited.
Unsuited	Well suited	Unsuited	Well suited	Well suited	Unsuited.
Unsuited	Well suited	Unsuited	Suited	Well suited	Unsuited.
Unsuited	Well suited	Unsuited	Suited	Well suited	Unsuited.
Suited	Well suited	Suited	Suited	Well suited	Suited.
Suited	Well suited	Suited	Suited	Well suited	Suited.
Suited	Poorly suited	Suited	Suited	Poorly suited	Suited.
Poorly suited	Poorly suited	Poorly suited	Suited	Poorly suited	Poorly suited.
Unsuited	Suited	Unsuited	Poorly suited	Suited	Unsuited.
Suited	Suited	Suited	Well suited	Suited	Suited.
Unsuited	Unsuited	Unsuited	Poorly suited	Unsuited	Unsuited.
Suited	Well suited	Suited	Suited	Well suited	Suited.
Suited	Well suited	Suited	Suited	Well suited	Suited.
Poorly suited	Well suited	Poorly suited	Suited	Well suited	Poorly suited.
Unsuited	Well suited	Unsuited	Suited	Well suited	Unsuited.
Poorly suited	Suited	Poorly suited	Suited	Suited	Suited.
Unsuited	Suited	Unsuited	Poorly suited	Suited	Unsuited.
Suited	Suited	Suited	Suited	Suited	Suited.
Poorly suited	Well suited	Poorly suited	Well suited	Well suited	Poorly suited.
Well suited	Well suited	Suited	Poorly suited	Well suited	Well suited.
Well suited	Suited	Well suited	Poorly suited	Suited	Well suited.
Poorly suited	Poorly suited	Suited	Suited	Poorly suited	Suited.
Poorly suited	Poorly suited	Poorly suited	Suited	Poorly suited	Unsuited.
Poorly suited	Suited	Unsuited	Well suited	Suited	Unsuited.
Unsuited	Suited	Unsuited	Suited	Suited	Unsuited.
Unsuited	Poorly suited	Unsuited	Poorly suited	Poorly suited	Unsuited.
Poorly suited	Well suited	Poorly suited	Well suited	Well suited	Poorly suited.
Poorly suited	Well suited	Unsuited	Well suited	Well suited	Unsuited.
Poorly suited	Suited	Unsuited	Well suited	Suited	Unsuited.
Well suited	Well suited	Poorly suited	Suited	Well suited	Suited.
Well suited	Well suited	Suited	Suited	Well suited	Well suited.

492 801—74——4

TABLE 4.—*Suitability of soils for wildlife habitat*

Soil series and map symbols	Elements of wildlife habitat		
	Grasses and legumes	Grain and seed crops	Wild herbaceous plants
Ruston:			
RuB	Well suited	Well suited	Well suited
RuC2	Well suited	Suited	Well suited
RuD3	Poorly suited	Poorly suited	Suited
Sweatman:			
SwD	Suited	Poorly suited	Well suited
SwF	Poorly suited	Unsuited	Suited
Tippah:			
ThB	Well suited	Well suited	Well suited
ThC	Well suited	Suited	Well suited
Trebloc: Tr	Suited	Poorly suited	Suited
Una: Un	Suited	Poorly suited	Suited
Urbo: Ur	Suited	Suited	Well suited
Wilcox:			
WcB	Suited	Suited	Suited
WlC, WlE2	Suited	Poorly suited	Suited

TABLE 5.—

[Tests performed by Mississippi State Highway Department in accordance with standard

Soil name and location	Report No.	Depth from surface	Moisture-density [1]		Mechanical analysis [2]		
			Maximum dry density	Optimum moisture	Percentage passing sieve—		
					No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)
		In.	*Pct.*	*Pct.*			
Brooksville silty clay. 1½ miles NE. of Egypt in the NE¼NE¼, sec. 25, T. 13 S., R. 5 E.	517117	8–16	97	21	100	98	95
	517118	50–68	100	22	100	96	93

[1] Based on AASHO Designation: T 99–57, Method A (*1*).
[2] Mechanical analysis according to AASHO Designation: T 88–57 (*1*). Results by this procedure may differ somewhat from results obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2

and stated kinds of wildlife—Continued

Elements of wildlife habitat—Continued			Kinds of wildlife		
Wetland food and cover plants	Hardwood trees and shrubs	Shallow water developments	Openland	Woodland	Wetland
Unsuited	Suited	Unsuited	Well suited	Suited	Unsuited.
Unsuited	Suited	Unsuited	Suited	Suited	Unsuited.
Unsuited	Suited	Unsuited	Poorly suited	Suited	Unsuited.
Unsuited	Suited	Unsuited	Suited	Suited	Unsuited.
Unsuited	Suited	Unsuited	Poorly suited	Suited	Unsuited.
Unsuited	Well suited	Poorly suited	Well suited	Well suited	Unsuited.
Unsuited	Well suited	Unsuited	Well suited	Well suited	Unsuited.
Suited	Suited	Suited	Suited	Suited	Suited.
Well suited	Suited	Well suited	Poorly suited	Suited	Well suited.
Suited	Well suited	Suited	Suited	Well suited	Suited.
Unsuited	Suited	Unsuited	Suited	Suited	Unsuited.
Unsuited	Suited	Unsuited	Suited	Suited	Unsuited.

Engineering test data

procedures of the American Association of State Highway Officials (AASHO) (*1*)]

Mechanical analysis [2]—Continued				Liquid limit	Plasticity index	Classification	
Percentage smaller than—						AASHO	Unified
0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.				
91	77	40	34	51	28	A-7(17)	CH
89	82	52	46	64	41	A-7(20)	CH

millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analysis data used in this table are not suitable for naming textural classes for soils.

TABLE 6.—*Estimated soil*

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or more kinds of soil, which may that appear in the first column

Soil series and map symbols	Depth to seasonal high water table	Depth from surface	Classification	
			USDA texture	Unified
		Inches		
Adaton: Ad	At or near the surface.	0-13	Silt loam	ML
		13-60	Silty clay loam	CL
Arkabutla: Ar	12 inches; soil also subject to flooding.	0-50	Silt loam	ML or CL
Atwood: AtA, AtB, AtC2, AtD3	More than 60 inches.	0-5	Silt loam	ML or CL
		5-87	Silty clay loam	CL
Belden: Be	12 inches or less; soil also subject to flooding.	0-8	Silty clay loam	CL
		8-17	Clay loam	CL
		17-30	Silty clay loam	CL
		30-60	Clay loam	CL
Brewton: Br	12 inches or less.	0-12	Fine sandy loam	SM, ML
		12-22	Loam	ML
		22-72	Loam (fragipan)	ML
		72-78	Loam	ML or CL
Brooksville: BvA, BvB	20 inches.	0-16	Silty clay loam	CL or CH
		16-82	Silty clay	CH
Cahaba: CaF	More than 60 inches.	0-6	Fine sandy loam	SM
		6-39	Sandy clay loam	SC or CL
		39-85	Sandy loam	SM
Catalpa: Ct	16 inches; soil also subject to flooding.	0-5	Silty clay loam	CH
		5-48	Silty clay	CH
*Demopolis: DeC3, DkE3. For Kipling part of DkE3, see Kipling series.	More than 60 inches.	0-10	Silty clay loam	CH
		10-48	Chalk.	
Falkner: Fa	15 inches.	0-5	Silt loam	ML
		5-38	Silty clay loam	CL
		38-67	Silty clay	CH
*Gullied land-Demopolis: GdE. For Gullied land part of GdE, properties too variable for valid estimates. For Demopolis part, see Demopolis series.				
*Gullied land-Ruston: GrE. For Gullied land part of GrE, properties too variable for valid estimates. For Ruston part, see Ruston series.				
Kipling: KlA, KlB2, KlC2, KpB3, KsD3.	12 inches.	0-4	Silt loam	ML or CL
		4-20	Silty clay	CH
		20-52	Clay	CH
		52-60	Chalk.	
Leeper: Le	12 inches; soil also subject to flooding.	0-7	Silty clay loam	CL
		7-20	Silty clay	CH
		20-52	Clay	CH
Marietta: Ma	20 inches.	0-7	Fine sandy loam	ML, SM
		7-48	Loam	ML or CL
Mashulaville: Mh	At or near the surface during wet periods.	0-19	Loam	ML or CL
		19-58	Loam (fragipan)	ML or CL

See footnotes at end of table.

properties significant to engineering

have different properties and limitations. For this reason, the reader should follow carefully the instructions for referring to other series of this table. The symbol < means less than]

Classification—Con.	Percentage passing sieve—			Permeability	Available water capacity	Reaction	Shrink-swell potential
AASHO	No. 10 (2.0 mm.) [1]	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)				
				Inches per hour	*Inches per inch of soil*	*pH*	
A–4	100	95–100	85–100	0. 63–2. 0	0. 20–0. 22	4. 5–5. 5	Low.
A–7	100	95–100	85–100	0. 06–0. 20	0. 20–0. 22	4. 5–5. 5	Moderate.
A–4 or A–6	100	95–100	95–100	0. 63–2. 0	0. 20–0. 22	4. 5–5. 5	Low.
A–4 or A–6	100	95–100	85–100	0. 63–2. 0	0. 20–0. 22	5. 1–6. 0	Low.
A–6 or A–7	100	95–100	85–95	0. 63–2. 0	0. 20–0. 22	5. 1–6. 0	Moderate.
A–7	100	95–100	85–95	0. 63–2. 0	0. 19–0. 22	5. 6–6. 5	Moderate.
A–6 or A–7	90–100	90–100	70–80	0. 63–2. 0	0. 18–0. 21	5. 6–6. 5	Moderate.
A–6 or A–7	90–100	95–100	85–95	0. 63–2. 0	0. 19–0. 22	5. 6–6. 5	Moderate.
A–6 or A–7	90–100	90–100	70–80	0. 63–2. 0	0. 18–0. 21	5. 6–6. 5	Moderate.
A–4	95–100	70–85	40–55	0. 63–2. 0	0. 10–0. 15	4. 5–5. 5	Low.
A–4	100	85–95	60–75	0. 63–2. 0	0. 10–0. 15	4. 5–5. 5	Low.
A–4	100	85–95	60–75	0. 06–0. 20	0. 08–0. 10	4. 5–5. 5	Low.
A–4 or A–6	100	85–95	60–75	0. 63–0. 20	0. 10–0. 15	4. 5–5. 5	Low.
A–6 or A–7	100	95–100	85–95	0. 06–0. 20	0. 18–0. 21	6. 1–7. 8	High.
A–7	100	95–100	90–95	<0. 06	0. 15–0. 18	6. 6–8. 4	Very high.
A–4	95–100	70–85	35–45	2. 0–6. 3	0. 10–0. 14	4. 5–5. 5	Low.
A–6	95–100	80–90	45–55	0. 63–2. 0	0. 12–0. 15	4. 5–5. 5	Low.
A–4, A–2	100	60–70	30–40	0. 63–2. 0	0. 10–0. 13	4. 5–5. 5	Low.
A–7	100	95–100	90–100	0. 06–0. 20	0. 15–0. 20	6. 6–8. 4	High.
A–7	100	95–100	85–95	0. 06–0. 20	0. 15–0. 20	6. 6–8. 4	High.
A–7	100	95–100	85–95	0. 06–0. 20	0. 15–0. 20	7. 9–8. 4	High.
A–4	100	95–100	90–100	0. 20–0. 63	0. 20–0. 22	4. 5–5. 5	Low.
A–6	100	95–100	85–95	0. 20–0. 63	0. 19–0. 22	4. 5–5. 5	Moderate.
A–7	100	95–100	85–95	0. 06–0. 20	0. 16–0. 18	4. 5–6. 1	High.
A–4 or A–6	100	90–100	70–90	0. 63–2. 0	0. 20–0. 25	5. 1–6. 0	Low.
A–7	100	95–100	90–95	0. 06–0. 20	0. 15–0. 18	5. 1–6. 0	High.
A–7	100	90–100	75–95	<0. 06	0. 15–0. 18	5. 6–8. 4	High.
A–6	100	95–100	85–95	0. 20–0. 63	0. 20–0. 22	5. 6–7. 5	Moderate.
A–7	100	95–100	90–95	0. 06–0. 20	0. 19–0. 21	5. 6–8. 4	High.
A–7	100	90–100	75–95	<0. 06	0. 18–0. 20	6. 6–8. 4	Very high.
A–4	100	70–85	45–55	0. 63–2. 0	0. 10–0. 15	5. 6–7. 8	Low.
A–4 or A–6	100	85–95	60–75	0. 63–2. 0	0. 13–0. 15	5. 6–7. 8	Low.
A–4 or A–6	100	85–95	60–70	0. 63–2. 0	0. 13–0. 16	4. 5–5. 5	Low.
A–4 or A–6	100	85–95	60–70	0. 06–0. 20	0. 06–0. 10	4. 5–5. 5	Low.

TABLE 6.—*Estimated soil*

Soil series and map symbols	Depth to seasonal high water table	Depth from surface	Classification	
			USDA texture	Unified
		Inches		
Mayhew: Mw	At or near the surface.	0–4	Silt loam	ML
		4–10	Silty clay loam	CL, CH
		10–48	Silty clay	CH
Okolona: OkA, OkB	More than 30 inches.	0–8	Clay	CH
		8–25	Silty clay	CH
		25–48	Clay	CH
		48–60	Chalk.	
Ora: OrB, OrC, OrC3, OrD3	About 24 inches.	0–4	Loam	ML
		4–27	Loam	CL
		27–34	Loam (fragipan)	ML
		34–54	Silt loam (fragipan)	SM
Prentiss: PnA, PnB	About 24 inches.	0–18	Fine sandy loam	SM, ML
		18–30	Loam	ML
		30–60	Loam (fragipan)	ML
*Robinsonville: Rm. For Marietta part of Rm, see Marietta series.	More than 30 inches.	0–3	Sandy loam	ML, SM
		3–12	Loamy sand	SM
		12–26	Loam	ML
		26–38	Silt loam	ML
		38–48	Silty clay loam	CL
Rosebloom: Rs	At the surface; soil also subject to flooding.	0–50	Silt loam	ML or CL
Rosebloom, sandy variant: Ro	At the surface; soil also subject to flooding.	0–6	Fine sandy loam	SM, ML
		6–48	Loam	ML
Ruston: RuB, RuC2, RuD3	More than 60 inches.	0–8	Fine sandy loam	ML, SM
		8–72	Sandy clay loam	SC, CL
		72–100	Loam	ML
Sweatman: SwD, SwF	More than 60 inches.	0–6	Loam	CL
		6–37	Silty clay	CH
		37–50	Stratified shale and fine sandy loam.	(2)
Tippah: ThB, ThC	26 inches.	0–5	Silt loam	ML
		5–32	Silty clay loam	CL
		32–58	Silty clay	CH
Trebloc: Tr	At or near the surface during wet periods.	0–21	Loam	ML
		21–60	Clay loam	CL
Una: Un	At or near the surface; soil also subject to flooding.	0–23	Silty clay loam	CL
		23–48	Silty clay	CH
Urbo: Ur	12 inches; soil also subject to flooding.	0–16	Silty clay	ML
		16–48	Silty clay loam	CL
Wilcox: WcB, WlC, WlE2	12 inches.	0–4	Silt loam	ML
		4–19	Silty clay	CH
		19–54	Clay	CH
		54–65	Shale.	

[1] 100 percent of all samples passed the No. 4 sieve.

properties significant to engineering—Continued

Classification—Con.	Percentage passing sieve			Permeability	Available water capacity	Reaction	Shrink-swell potential
AASHO	No. 10 (2.0 mm.) [1]	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)				
				Inches per hour	*Inches per inch of soil*	*pH*	
A-4	100	90-100	70-90	0. 63-2. 0	0. 20-0. 21	4. 5-5. 5	Low.
A-6 or A-7	100	95-100	85-95	0. 63-2. 0	0. 17-0. 20	4. 5-5. 5	Moderate.
A-7	100	95-100	90-95	<0. 06	0. 15 0. 18	4. 5-5. 5	High.
A-7	100	90 ·100	75-95	<0. 06	0. 15-0. 18	6. 6-7. 8	Very high.
A-7	100	95-100	90-95	<0. 06	0. 15 0. 18	7. 4-8. 4	Very high.
A-7	100	90-100	75-95	<0. 06	0. 15-0. 18	7. 4-8. 4	Very high.
A-4	100	85-95	60-75	0. 63-2. 0	0. 10-0. 13	4. 5-5. 5	Low.
A-6	100	85-95	60-75	0. 63-2. 0	0. 15-0. 20	4. 5 5. 5	Low.
A-4	100	85-95	60 75	0. 20-0. 63	0. 07-0. 10	4. 5-5. 5	Low.
A 2, A 4	100	60-70	30-40	0. 20-0. 63	0. 07-0. 10	4. 5-5. 5	Low.
A 4	100	70-85	40 55	0. 63-2. 0	0. 10-0. 15	4. 5-5. 5	Low.
A 4	100	85-95	60-75	0. 63-2. 0	0. 10-0. 15	4. 5-5. 5	Low.
A-4	100	85-95	60-75	0. 20-0. 63	0. 07 0. 10	4. 5-5. 5	Low.
A-4	100	70-85	40-65	0. 63-2. 0	0. 10-0. 15	6. 1-8. 4	Low.
A-2	100	50-70	15-30	2. 0-6. 3	0. 04-0. 09	6. 1-8. 4	Low.
A-4	100	85 95	60-75	0. 63-2. 0	0. 10-0. 15	6. 1-8. 4	Low.
A-4	100	90-100	70 90	0. 63-2. 0	0. 10-0. 15	6. 1-8. 4	Low.
A 6	100	95-100	85-95	0. 63 2. 0	0. 15-0. 20	6. 1-8. 4	Moderate.
A-4 or A 6	100	90-100	85-95	0. 63-2. 0	0. 21-0. 24	4. 5 5. 5	Low to moderate.
A-4	100	70-85	40-55	0. 63-2. 0	0. 10-0. 15	4. 5 5. 5	Low.
A-4	100	85-95	60 75	0. 63-2. 0	0. 10-0. 15	4. 5-5. 5	Low.
A 4	100	70-85	40-55	0. 63-2. 0	0. 10-0. 15	4. 5 5. 5	Low.
A-6	100	80-90	35 55	0. 63-2. 0	0. 14-0. 16	4. 5-5. 5	Low to moderate.
A 4	100	85-95	60-75	0. 63-2. 0	0. 10-0. 15	4. 5-5. 5	Low.
A-6	100	85 95	60 75	0. 63-2. 0	0. 20-0. 22	4. 0-5. 5	Low.
A 7	100	95-100	90-95	0. 20-0. 63	0. 16-0. 20	4. 0-5. 5	Moderate.
(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2).
A-4	100	90-100	70-90	0. 63-2. 0	0. 20-0. 22	4. 5-5. 5	Low.
A-6	100	95 100	85-95	0. 63-2. 0	0. 19-0. 21	4. 5-5. 5	Moderate.
A-7	100	95-100	90 95	0. 06-0. 20	0. 16-0. 18	4. 5 5. 5	High.
A-4	100	85-95	70-90	0. 63-2. 0	0. 15-0. 20	4. 5-5. 5	Low.
A-6	100	90-100	70-80	0. 20-0. 63	0. 15 0. 20	4. 5 5. 5	Moderate.
A 6	100	95-100	85 95	0. 06-0. 20	0. 19-0. 21	4. 5 5. 5	Moderate.
A-7	100	90-100	85-95	<0. 06	0. 12 0. 19	4. 5 5. 5	High.
A-6	100	90-100	85-95	0. 06-0. 20	0. 17-0. 20	4. 5-5. 5	High.
A-7	100	95-100	85-95	0. 20-0. 63	0. 18-0. 21	4. 5 5. 5	Moderate.
A 4	100	90-100	70-90	0. 63-2. 0	0. 15-0. 20	4. 5-5. 5	Low.
A-7	100	95-100	90-100	0. 06-0. 20	0. 18-0. 20	4. 5-5. 5	High.
A-7	100	95-100	75 95	<0. 06	0. 15-0. 18	4. 5-5. 5	Very high.

[2] Too variable to estimate.

TABLE 7.—*Engineering*

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or more kinds of soil, which may that appear in the first

Soil series and map symbols	Suitability as source of—		Soil features affecting—	
	Topsoil	Road fill	Highway location	Farm ponds: Reservoir area
Adaton: Ad	Poor: wetness	Poor: wetness	Nearly level; wetness	Slow seepage rate
Arkabutla: Ar	Fair: wetness	Fair: wetness; fair traffic-supporting capacity.	Subject to flooding; fair traffic-supporting capacity; wetness.	Moderate permeability
Atwood: AtA, AtB, AtC2, AtD3	Fair: silty clay loam at a depth below about 5 inches.	Fair: easily eroded; fair traffic-supporting capacity.	Fair traffic-supporting capacity.	Moderate permeability
Belden: Be	Fair: silty clay loam	Fair: wetness	Wetness; subject to flooding.	Moderate permeability
Brewton: Br	Fair: wetness	Fair: wetness; fair traffic-supporting capacity.	Wetness; drainage impeded by fragipan; fair traffic-supporting capacity.	Generally slow seepage; slow permeability.
Brooksville: BvA, BvB	Poor: silty clay	Poor: very high shrink-swell potential.	Very high shrink-swell potential.	Impervious; will support deep water.
Cahaba: CaF	Good	Good	Soil properties favorable.	Excessive seepage in some areas.
Catalpa: Ct	Poor: silty clay at a depth below about 5 inches.	Poor: high shrink-swell potential.	On flood plain; occasional flooding; high shrink-swell potential.	Will support deep water; slow seepage rate.
*Demopolis: DeC3, DkE3. For Kipling part of DkE3, see Kipling series.	Not suited: shallow to chalk.	Poor: high shrink-swell potential; shallow to chalk.	Shallow to chalk	Chalk at depth of about 1 foot; subject to seepage.
Falkner: Fa	Fair in upper part. Poor below a depth of 3 feet; silty clay.	Poor: high shrink-swell potential.	Level to gently sloping; underlain by clay that has high shrink-swell potential; wetness.	Slow seepage rate
*Gullied land-Demopolis: GdE. For Gullied land part, onsite inspection required. For Demopolis part of GdE, see Demopolis series.				
*Gullied land-Ruston: GrE. For Gullied land part, onsite inspection required. For Ruston part of GrE, see Ruston series.				

interpretations of soils

have different properties and limitations. For this reason the reader should follow carefully the instructions for referring to other series column of this table]

Soil features affecting—Continued				
Farm ponds—Continued: Embankments, dikes, and levees	Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Fair to good slope stability; slow seepage rate.	Poorly drained; needs surface drainage.	Very high available water capacity; slow permeability.	Level; no erosion hazard.	Very high available water capacity.
Fair to good slope stability; slow seepage rate.	Somewhat poorly drained; needs surface drainage.	Very high available water capacity; moderate permeability.	Level; subject to flooding.	Very high available water capacity; supports good sod.
Good slope stability	Well drained	Very high available water capacity; moderate permeability.	Soil features favorable	Very high available water capacity; supports good sod.
Fair slope stability	Somewhat poorly drained; needs surface drainage.	High available water capacity; moderate permeability.	Not needed; level; subject to flooding.	Supports good sod.
Fair slope stability; subject to piping.	Somewhat poorly drained; needs surface drainage.	Moderate permeability above fragipan; medium available water capacity.	Soil features favorable	Supports good sod where fertilized; medium available water capacity.
High compressibility; cracks when dry; difficult to pack properly; fair slope stability.	Somewhat poorly drained; needs surface drainage; wetness.	Soil cracks easily; high initial intake rate decreases as soil becomes moist.	Very high shrink-swell potential; soil cracks easily.	High available water capacity; supports good sod.
Fair to good slope stability.	Well drained	Moderate permeability; medium available water capacity.	Erosion hazard; slope	Medium available water capacity; supports good sod where fertilized.
Cracks when dry; difficult to pack properly; high compressibility.	Moderately well drained; needs surface drainage.	Soil cracks easily; high intake rate decreases as soil becomes moist.	Level; flooding	Plastic clays; supports good sod.
Clay cracks when dry; shallow to chalk.	Not needed; well drained.	Slow permeability; shallow to chalk; low available water capacity.	Chalk at depth of about 1 foot.	Chalk at depth of about 1 foot; low available water capacity.
Fair slope stability; slow seepage rate; difficult to pack in lower part.	Somewhat poorly drained; surface drainage needed.	Slow permeability; high available water capacity.	Not needed; level to gently sloping; no erosion hazard.	High available water capacity; supports good sod.

492-801—74——5

TABLE 7.—*Engineering*

Soil series and map symbols	Suitability as source of—		Soil features affecting—	
	Topsoil	Road fill	Highway location	Farm ponds: Reservoir area
Kipling: KlA, KlB2, KlC2, KpB3, KsD3.	Poor: silty clay at a depth below about 4 inches.	Poor: high shrink-swell potential.	High shrink-swell potential.	Impervious; will support deep water.
Leeper: Le	Poor: silty clay at a depth below about 7 inches.	Poor: very high shrink-swell potential	On flood plain; very high shrink-swell potential.	Impervious; will support deep water.
Marietta: Ma	Good	Fair: wetness; fair traffic-supporting capacity.	Subject to flooding	Moderate permeability; possible seepage.
Mashulaville: Mh	Poor: wetness	Poor: wetness	Wetness; drainage impeded by fragipan.	Slow seepage rate
Mayhew: Mw	Poor: silty clay at a depth below about 10 inches; wetness.	Poor: high shrink-swell potential.	High shrink-swell potential.	Very slow permeability; will support deep water.
Okolona: OkA, OkB	Poor: silty clay and clay.	Poor: very high shrink-swell potential.	Very high shrink-swell potential.	Impervious; will support deep water.
Ora: OrB, OrC, OrC3, OrD3	Fair: material below excavation depth somewhat difficult to reclaim.	Fair to good; fair to good traffic-supporting capacity.	Fair to good traffic-supporting capacity.	Excessive seepage in some areas.
Prentiss: PnA, PnB	Fair: material below excavation depth somewhat difficult to reclaim.	Fair: wetness; fair traffic-supporting capacity.	Wetness caused by fragipan; fair traffic-supporting capacity.	Excessive seepage in some areas.
*Robinsonville: Rm. For Marietta part of Rm, see Marietta series.	Good	Fair to good: fair to good traffic-supporting capacity.	Subject to flooding	High rate of seepage likely.
Rosebloom: Rs	Poor: wetness	Poor: wetness	Subject to flooding	Moderate permeability.
Rosebloom, sandy variant: Ro	Poor: wetness	Poor: wetness	On flood plain; subject to occasional to frequent flooding.	Moderate permeability.
Ruston: RuB, RuC2, RuD3	Good	Good to fair: fair to good traffic-supporting capacity.	Soil properties favorable.	Excessive seepage in some areas.
Sweatman: SwD, SwF	Fair: silty clay at a depth below about 6 inches.	Poor: poor traffic-supporting capacity.	Poor traffic-supporting capacity.	Moderately slow permeability.

interpretations of soils—Continued

Soil features affecting—Continued				
Farm ponds—Continued: Embankments, dikes, and levees	Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Cracks when dry; difficult to pack properly; high compressibility.	Somewhat poorly drained; surface drainage needed where slopes are level or nearly level.	Soil cracks easily; high initial intake rate, decreasing as soil becomes moist.	High shrink-swell potential; soil cracks easily.	Plastic clay; supports good sod.
Cracks when dry; difficult to pack properly; high compressibility.	Somewhat poorly drained; needs surface drainage.	Soil cracks easily; high initial intake rate, decreasing as soil becomes moist.	Level; flooding	Plastic clay; supports good sod.
Fair to good slope stability.	Moderately well drained; needs surface drainage.	Moderate permeability; medium available water capacity.	Level; flooding	Medium available water capacity; supports good sod.
Fair slope stability	Poor drainage; needs surface drainage.	Moderate permeability above fragipan; medium available water capacity.	Level; no erosion hazard	Supports good sod if fertilized; medium available water capacity.
Cracks when dry; high compressibility.	Poor drainage; needs surface drainage.	Very slow permeability; high available water capacity.	Level; no erosion hazard	High available water capacity; supports fair to good sod if fertilized.
Cracks when dry; difficult to pack properly; high compressibility.	Well drained; needs removal of excess surface water in level and nearly level areas.	Soil cracks easily; high initial intake rate, decreasing as soil becomes moist.	Very high shrink-swell potential; soil cracks easily.	Very plastic clay; supports good sod.
Fair to good slope stability.	Moderately well drained; 2 to 12 percent slopes.	Moderate permeability above fragipan; medium available water capacity.	Soil features favorable above fragipan.	Medium available water capacity; supports good sod except in fragipan areas.
Fair slope stability	Moderately well drained; needs surface drainage in level and nearly level areas.	Moderate permeability above fragipan; medium available water capacity.	Soil features favorable	Medium available water capacity; supports good sod except in fragipan areas.
Fair slope stability	Well drained	Moderate permeability; medium available water capacity.	Not needed; level; subject to flooding.	Medium available water capacity; supports good sod.
Fair to good slope stability.	Poorly drained; needs surface drainage.	Very high available water capacity.	Level; subject to flooding.	Very high available water capacity; supports good sod.
Fair slope stability	Poorly drained; needs surface drainage.	Moderate permeability; medium available water capacity.	Level; subject to flooding.	Medium available water capacity; supports good sod.
Generally good slope stability.	Not needed; well drained.	Moderate permeability; moderate available water capacity.	Soil features favorable in moderately sloping areas.	Medium available water capacity; supports good sod if fertilized.
Fair slope stability	Well drained	Moderately slow permeability; high available water capacity.	Moderate shrink-swell potential; clayey texture.	High available water capacity; supports good sod if fertilized.

TABLE 7.—*Engineering*

Soil series and map symbols	Suitability as source of—		Soil features affecting—	
	Topsoil	Road fill	Highway location	Farm ponds: Reservoir area
Tippah: ThB, ThC	Fair: texture	Poor: high shrink-swell potential.	Underlain by clay that has high shrink-swell potential.	Slow seepage rate
Trebloc: Tr	Fair: wetness	Poor: wetness	Wetness	Moderately slow permeability; wetness in low positions.
Una: Un	Poor: silty clay loam in the upper 2 feet and silty clay below this.	Poor: high shrink-swell potential.	On flood plain; poorly drained; high shrink-swell potential.	Impervious; will support deep water.
Urbo: Ur	Poor: silty clay	Poor to fair; moderate to high shrink-swell potential; wetness; poor to fair traffic-supporting capacity.	Subject to flooding; moderate to high shrink-swell potential.	Slow seepage rate
Wilcox: WcB, WlC, WlE2	Poor: silty clay at a depth below about 6 inches.	Poor: very high shrink-swell potential.	Very high shrink-swell potential.	Impervious; will support deep water.

interpretations of soils—Continued

Soil features affecting—Continued				
Farm ponds—Continued: Embankments, dikes, and levees	Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Good to fair slope stability; slow seepage rate.	Moderately well drained.	High available water capacity; permeability moderate in upper part and slow in lower part.	Soil features favorable in upper part of soil.	High available water capacity; supports fairly good sod.
Good slope stability.	Poorly drained; needs surface drainage; wetness.	Moderately slow permeability; high available water capacity.	Level; no erosion hazard.	High available water capacity; fairly easy to sod if fertilized.
Cracks when dry; difficult to pack properly; high compressibility.	Poorly drained; needs surface drainage.	Soil cracks easily; high initial intake rate, decreasing as soil becomes moist.	Level; subject to flooding.	Plastic clay; high available water capacity; supports good sod.
Fair to good slope stability.	Somewhat poorly drained; needs surface drainage.	Moderately slow to slow permeability; high available water capacity.	Level; subject to flooding.	High available water capacity; supports good sod.
Cracks when dry; high compressibility.	Somewhat poorly drained; needs surface drainage; 2 to 17 percent slopes.	Very slow permeability; slow intake rate; high available water capacity.	Very high shrink-swell potential; cracks easily.	High available water capacity; sod difficult to establish.

Shrink-swell potential is the relative change in volume to be expected of soil material as it changes in moisture content, that is, the extent to which the soil shrinks as it dries out or swells when it gets wet. Extent of shrinking and swelling is influenced by the amount and kind of clay in the soil. Shrinking and swelling of soils causes much damage to building foundations, roads, and other structures. A very high shrink-swell potential, such as that of Okolona clay, indicates a hazard to maintenance of structures built in, on, or with material having this rating.

Engineering interpretations of soils

The estimated interpretations in table 7 are based on the engineering properties of soils shown in table 6, on test data for soils in this survey area and others nearby or adjoining, and on the experience of engineers and soil scientists with the soils of Chickasaw County. In table 7 ratings are used to summarize limitation or suitability of the soils for all listed purposes other than for drainage of cropland and pasture, irrigation, ponds and reservoirs, embankments, terraces and diversions, and waterways. For these particular uses, table 7 lists those soil features not to be overlooked in planning, installation, and maintenance. Although the information given applies only to the soil depths indicated, it is reasonably reliable to a depth of 6 feet for most soils.

Following are explanations of some of the column heads in table 7.

Topsoil is used for topdressing in areas where vegetation is to be established and maintained. Suitability of the soil as a source of topsoil is affected mainly by ease of working and spreading the soil material, as in preparing a seedbed; by natural fertility of the soil material or the response of plants where fertilizer has been applied; and by absence of substances toxic to plants. Texture of the soil material and the content of stone fragments are characteristics that affect suitability, but the damage that will result at the area from which topsoil is taken is also considered.

Road fill is the soil material used for building up road grades and for supporting the base layers. The properties important in evaluating soil material for use as road fill are shrink-swell potential, traffic-supporting capacity, wetness, and thickness of the material at its source. In table 7 the soils in Chickasaw County are given a rating of *good*, *fair*, or *poor* as a source of road fill. Cahaba soils are rated good because their shrink-swell potential is generally low, because they are well drained the borrow material can be excavated soon after heavy rains, because their traffic-supporting capacity is generally good, and because the borrow material is thicker than 6 feet at its source. Brooksville soils are rated as poor because their shrink-swell potential is very high and their traffic-supporting capacity is poor.

Some of the soil features that affect highway location are drainage, depth to bedrock, shrink-swell potential, and flooding hazard.

Pond reservoir areas hold water behind a dam or embankment. Some of the soil features that affect the use of soils as a reservoir area are rate of seepage, permeability, and depth to the water table. Falkner soils, for example, are good as reservoir areas because they have a low rate of seepage and are able to hold water. The Ruston soils are poor to fair as reservoir areas because of the excessive seepage in some places.

Embankments, dikes, and levees require soil material that is resistant to seepage and piping and that has favorable stability, shrink-swell potential, shear strength, and compactibility. Stones or organic material in a soil are among factors that are unfavorable.

Agricultural drainage, or drainage of cropland and pasture, is affected by such soil properties as permeability, texture, and structure; depth to claypan, rock, or other layers that influence rate of water movement; depth to the water table; slope; stability in ditch-banks; susceptibility to stream overflow; salinity or alkalinity; and availability of outlets for drainage.

Irrigation of a soil is affected by such features as slope; susceptibility to stream overflow, water erosion, or soil blowing; soil texture; content of stones; accumulations of salts and alkali; depth of root zone; rate of water intake at the surface; permeability of soil layers below the surface layer and in fragipans or other layers that restrict movement of water; amount of water held available to plants; and need for drainage, or depth to water table or bedrock.

Terraces and diversions are embankments, or ridges, constructed across the slope to intercept runoff so that it soaks into the soil or flows slowly to a prepared outlet. Features that affect suitability of a soil for terraces are uniformity and degree of slope; depth to bedrock or other unfavorable material; presence of stones; permeability; and resistance to water erosion, soil slip, and soil blowing. A soil suitable for these structures is not difficult to vegetate, and there are outlets for runoff.

Soil features considered for waterways are those that affect the establishment, growth, and maintenance of plants and that hinder layout and construction. Such features as available water capacity, depth to the water table and to bedrock, presence of a fragipan, and suitability for grasses are important.

The suitability of soils as a source of sand and gravel is not given in table 7. The soils in this county are not suitable as a source of gravel. Most of them are also not suitable as a source of sand, but the underlying material in the Cahaba and Ruston soils is a good source in some areas and Ora soils are an improbable source.

Use of the Soils for Town and Country Planning [6]

This section describes properties and characteristics of the soils of Chickasaw County for town and country planning. It was prepared for use by planners, developers, builders, landscape architects, present and potential landowners, and others interested in this growing use of soils.

Chickasaw County is favorably suited for this kind of development. Much of it is readily accessible from U.S. Highway No. 45; the Natchez Trace Parkway; and Mississippi Highways 8, 15, and 32. A major asset is the Tombigbee National Forest, which occupies about 80,000 acres in the county.

In selecting an area for town or country development,

[6] G. W. YEATES, staff conservationist, Soil Conservation Service, prepared this section.

the suitability of the soils for each of the several activities or facilities must be evaluated. Some of the more common characteristics of soils that affect their use for such development are texture, drainage, reaction, slope, permeability, and depth to rock or to water table, and the hazard of flooding. Based on these and other related properties, the soils of Chickasaw County have been rated according to their limitations for specific uses. The ratings for these stated uses are shown in table 8. Each area proposed for development should have an onsite investigation. Values should not be assigned to any rating for bearing strength of a soil.

In table 8 the soils are rated as having slight, moderate, or severe limitations for the specified uses. For all of these ratings, it is assumed that a good cover of vegetation can be established and maintained. A limitation of *slight* means that soil properties are generally favorable and limitations are so minor that they easily can be overcome. A *moderate* limitation can be overcome or modified by planning, by design, or by special maintenance. A *severe* limitation means that costly soil reclamation, special design, intense maintenance, or a combination of these is required.

Following are explanations of the column heads in table 8.

Dwellings are not more than three stories high and are supported by foundation footings placed in undisturbed soil. The features that affect the rating of a soil for dwellings are those that relate to capacity to support a load and resist settlement under the load, and those that relate to ease of excavation. Soil properties that affect capacity to support a load are wetness, susceptibility to flooding, density, plasticity, texture, and shrink-swell potential. Those that affect excavation are wetness, slope, depth to bedrock, and content of stones and rocks.

Sewage lagoons are shallow ponds constructed to hold sewage within a depth of 2 to 5 feet long enough for bacteria to decompose the solids. A lagoon has a nearly level floor and sides, or embankments, of compacted soil material. The assumption is made that the embankment is compacted to medium density and that the pond is protected from flooding. Soil properties are considered that affect the pond floor and the embankment. Those that affect the pond floor are permeability, organic-matter content, and slope, and if the floor needs to be leveled, depth to bedrock is important. The soil properties that affect the embankment are the engineering properties of the embankment material as interpreted from the Unified Soil Classification System and the amounts of stones, if any, that influence the ease of excavation and compaction of the embankment material.

Septic tank filter fields are subsurface systems of tile or perforated pipe that distribute effluent from a septic tank into natural soil. The soil material between depths of 18 inches and 6 feet is evaluated. The soil properties considered are those that affect both absorption of effluent and construction and operation of the system. Properties that effect absorption are permeability, depth to water table or rock, and susceptibility to flooding. Slope is a soil property that affects difficulty of layout and construction and also the risk of soil erosion, lateral seepage, and downslope flow of effluent. Large rocks or boulders increase construction costs.

Camp areas are used intensively for tents and small camp trailers and the accompanying activities of outdoor living. Little preparation of the site is required, other than shaping and leveling for tenting and parking areas. Camp areas are subject to heavy foot traffic and limited vehicular traffic. The most suitable soils have mild slopes, good drainage, freedom from flooding during periods of heavy use, and a surface material that is firm after rains but not dusty when dry. The surface should be free of rocks and coarse fragments.

Picnic areas are attractive natural or landscaped tracts used mainly for preparing meals and eating outdoors. These areas are subject to heavy foot traffic. Most of the vehicular traffic, however, is confined to access roads. The most suitable soils are firm when wet but not dusty when dry; are free of flooding during the season of use; and do not have slopes or stoniness that greatly increase cost of leveling sites or of building access roads.

Playgrounds are areas used intensively for baseball, football, badminton, and similar organized games. Soils suitable for this use need to withstand intensive foot traffic. The most suitable soils are nearly level, and they are in areas that are free of coarse fragments on the surface and rock outcrops. They should also have good drainage, freedom from flooding during periods of heavy use, and a surface material that is firm after rains but not dusty when dry. If grading and leveling are required, depth to rock is important.

Paths and trails are used for local and cross-country travel by foot or horseback. Design and layout should require little or no cutting and filling. The most suitable soils are at least moderately well drained, are firm when wet but not dusty when dry, are flooded not more than once during the season of use, and have slopes of less than 15 percent. There are few or no rocks or stones on the surface of these soils.

Local roads and streets have an all-weather surface layer that can support automobile traffic the year round. They have a subgrade of underlying soil material; a base consisting of gravel, crushed rock, or soil material stabilized with lime or cement; and a flexible or rigid surface commonly asphalt or concrete. These roads are graded to shed water and have ordinary provisions for drainage. They are built mainly from the soil material at hand, and most cuts and fills are less than 6 feet deep.

Soil properties that most affect design and construction of roads and streets are load-supporting capacity and stability of the subgrade and the workability and quantity of cut and fill material available. The AASHO and Unified classifications of the soil material and the shrink-swell potential indicate traffic-supporting capacity. Wetness and flooding affect stability of the soil material. Slope, depth to hard rock, content of stones and rocks, and wetness affect ease of excavation and amount of cut and fill needed for an even grade.

In addition to the uses for which the soils are rated in table 8, manmade ponds and reservoirs are the most important improvements that influence rural outdoor recreational development (figs. 10 and 11). Of utmost importance are those features and qualities of undisturbed soils that affect their suitability for water impoundments. Properties that affect the seepage rate should be thoroughly evaluated.

TABLE 8.—*Degree of soil limitations for*

[An asterisk in the first column indicates that at least one mapping unit in this series is made up of two or more kinds of soil, which may series that appear in the

Soil series and map symbols	Dwellings [1]	Sewage lagoons	Septic tank filter fields
Adaton: Ad	Severe: wetness	Slight	Severe: wetness; slow permeability.
Arkabutla: Ar	Severe: subject to flooding; wetness.	Moderate: moderate permeability.	Severe: wetness; subject to flooding.
Atwood:			
AtA	Moderate: moderate bearing strength.	Moderate: moderate permeability.	Slight
AtB	Moderate: moderate bearing strength.	Moderate: moderate permeability; slope.	Slight
AtC2	Moderate: moderate bearing strength.	Moderate: slope	Slight
AtD3	Moderate: slope; moderate bearing strength.	Severe: slope	Severe: slope; severely eroded.
Belden: Be	Severe: subject to flooding; wetness.	Moderate: moderate permeability.	Severe: wetness; subject to flooding.
Brewton: Br	Severe: wetness	Slight	Severe: wetness; slow permeability in fragipan.
Brooksville:			
BvA	Severe: very high shrink-swell potential.	Slight	Severe: very slow permeability.
BvB	Severe: very high shrink-swell potential.	Moderate: slope	Severe: very slow permeability.
Cahaba: CaF	Severe: slope	Severe: slope	Severe: slope
Catalpa: Ct	Severe: subject to flooding; high shrink-swell potential.	Slight	Severe: slow permeability.
*Demopolis:			
DeC3	Severe: shallow to chalk; high shrink-swell potential.	Severe: shallow to chalk.	Severe: slow permeability; shallow to chalk.
DkE3 For Kipling part of DkE3, see Kipling series, KsD3 unit.	Severe: shallow to chalk; high shrink-swell potential.	Severe: slope; shallow to chalk.	Severe: slow permeability; shallow to chalk.
Falkner: Fa	Severe: high shrink-swell potential.	Slight	Severe: slow permeability.
*Gullied land-Demopolis: GdE. For Gullied land part, onsite inspection required. For Demopolis part of GdE, see Demopolis series, DeC3 unit.			
*Gullied land-Ruston: GrE. For Gullied land part, onsite inspection required. For Ruston part of GrE, see Ruston series, RuD3 unit.			

See footnote at end of table.

town and country planning

have different properties and limitations. For this reason the reader should follow carefully the instructions for referring to other first column of this table]

Camp areas	Picnic areas	Playgrounds	Paths and trails	Local roads and streets
Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness.
Severe: wetness; subject to flooding.	Moderate: wetness; subject to flooding 1 or 2 times during season of use.	Severe: wetness; subject to flooding.	Moderate: wetness; subject to flooding 1 or 2 times during season of use.	Severe: subject to flooding; wetness.
Slight	Slight	Slight	Slight	Moderate: moderate traffic-supporting capacity.
Slight	Slight	Moderate: slope	Slight	Moderate: moderate traffic-supporting capacity.
Slight	Slight	Severe: slope	Slight	Moderate: moderate traffic-supporting capacity.
Moderate to severe: slope; severely eroded.	Moderate to severe: slope; severely eroded.	Severe: slope	Moderate: slope; severely eroded.	Moderate: moderate traffic-supporting capacity.
Severe: wetness; subject to flooding.	Moderate: wetness; subject to flooding 1 or 2 times during season of use.	Severe: wetness; subject to flooding.	Moderate: wetness; subject to flooding 1 or 2 times during season of use.	Severe: subject to flooding; wetness.
Moderate: wetness	Moderate: wetness	Moderate: wetness; fair trafficability.	Moderate: wetness	Severe: moderate traffic-supporting capacity; wetness.
Severe: very slow permeability; wetness.	Moderate: wetness	Severe: very slow permeability; wetness.	Moderate: wetness	Severe: very high shrink swell potential.
Severe: very slow permeability; wetness.	Moderate: wetness	Severe: very slow permeability; wetness.	Moderate: wetness	Severe: very high shrink-swell potential.
Severe: slope	Severe: slope	Severe: slope	Moderate to severe: slope.	Severe: slope.
Moderate: wetness; slow permeability.	Moderate: wetness	Severe: subject to annual flooding.	Moderate: moderate traffic-supporting capacity; wetness.	Severe: subject to flooding; high shrink-swell potential.
Moderate: slow permeability; shallow over chalk.	Moderate: fair trafficability.	Severe: shallow to chalk.	Moderate: fair trafficability.	Severe: high shrink-swell potential; shallow to chalk.
Severe: slope; slow permeability; shallow to chalk.	Moderate to severe: slope.	Severe: slope; shallow to chalk.	Moderate: slope	Severe: high shrink-swell potential; shallow to chalk.
Moderate: slow permeability; wetness.	Moderate: wetness	Moderate: wetness; slow permeability.	Moderate: wetness	Severe: high shrink-swell potential.

TABLE 8.—*Degree of soil limitations for*

Soil series and map symbols	Dwellings [1]	Sewage lagoons	Septic tank filter fields
Kipling:			
KlA	Severe: high shrink-swell potential.	Slight	Severe: very slow permeability.
KlB2	Severe: high shrink-swell potential.	Moderate: slope	Severe: very slow permeability.
KlC2	Severe: high shrink-swell potential.	Moderate: slope	Severe: very slow permeability.
KpB3	Severe: high shrink-swell potential.	Moderate: slope	Severe: very slow permeability.
KsD3	Severe: high shrink-swell potential.	Severe: slope	Severe: very slow permeability.
Leeper: Le	Severe: subject to flooding; very high shrink-swell potential.	Slight	Severe: very slow permeability.
Marietta: Ma	Severe: subject to flooding.	Moderate: moderate permeability.	Severe: subject to flooding.
Mashulaville: Mh	Severe: wetness	Slight	Severe: slow permeability in fragipan; wetness.
Mayhew: Mw	Severe: high shrink-swell potential; wetness.	Slight	Severe: very slow permeability.
Okolona:			
OkA	Severe: very high shrink-swell potential.	Slight	Severe: very slow permeability.
OkB	Severe: very high shrink-swell potential.	Moderate: slope	Severe: very slow permeability.
Ora:			
OrB	Moderate: wetness	Moderate: slope	Severe: moderately slow permeability in fragipan.
OrC	Moderate: wetness	Moderate: slope	Severe: moderately slow permeability in fragipan.
OrC3	Moderate: wetness	Moderate: slope	Severe: moderately slow permeability in fragipan.
OrD3	Moderate: slope	Severe: slope	Severe: moderately slow permeability in fragipan.
Prentiss:			
PnA	Moderate: wetness	Slight	Severe: moderately slow permeability in fragipan.
PnB	Moderate: wetness	Moderate: slope	Severe: moderately slow permeability in fragipan.
*Robinsonville: Rm For Marietta part of Rm, see Marietta series.	Severe: subject to flooding.	Moderate to severe: moderate permeability.	Severe: subject to flooding.

See footnote at end of table.

town ana country planning—Continued

Camp areas	Picnic areas	Playgrounds	Paths and trails	Local roads and streets
Moderate: very slow permeability; wetness	Moderate: wetness	Moderate: wetness; very slow permeability.	Moderate: wetness	Severe: high shrink-swell potential.
Moderate: very slow permeability; wetness.	Moderate: wetness	Moderate: wetness; slope; very slow permeability.	Moderate: wetness	Severe: high shrink-swell potential.
Moderate: very slow permeability.	Moderate: wetness	Severe: slope; very slow permeability.	Moderate: wetness	Severe: high shrink-swell potential.
Moderate: fair trafficability; very slow permeability.	Moderate: wetness; fair trafficability.	Moderate: wetness; fair trafficability; very slow permeability.	Moderate: fair trafficability; wetness.	Severe: high shrink-swell potential.
Severe: silty clay surface soil; very slow permeability.	Severe: wetness; silty clay surface soil.	Severe: wetness; silty clay surface soil; very slow permeability.	Severe: silty clay surface soil.	Severe: high shrink-swell potential.
Severe: subject to flooding; very slow permeability.	Moderate: wetness; subject to flooding 1 or 2 times during season of use.	Severe: wetness; subject to flooding; very slow permeability.	Moderate: wetness; subject to flooding 1 or 2 times during season of use.	Severe: subject to flooding; very high shrink-swell potential.
Severe: subject to flooding.	Moderate: wetness; subject to flooding 2 or 3 times during season of use.	Severe: subject to flooding.	Moderate: subject to flooding 2 or 3 times during season of use.	Severe: subject to flooding.
Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness.
Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: high shrink-swell potential; wetness.
Severe: clayey surface soil; very slow permeability.	Severe: clayey surface soil.	Severe: clayey surface soil; very slow permeability.	Severe: clayey surface soil.	Severe: very high shrink-swell potential.
Severe: clayey surface soil; very slow permeability.	Severe: clayey surface soil.	Severe: clayey surface soil; very slow permeability	Severe: clayey surface soil.	Severe: very high shrink-swell potential.
Slight	Slight	Moderate: slope	Slight	Moderate: wetness.
Slight	Slight	Severe: slope	Slight	Moderate: wetness.
Slight	Slight	Severe: slope	Slight	Moderate: wetness.
Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope.
Slight	Slight	Slight	Slight	Moderate: wetness.
Slight	Slight	Moderate: slope	Slight	Moderate: wetness.
Slight	Slight	Moderate: subject to flooding during season of use about once in two years.	Slight	Severe: subject to flooding.

TABLE 8.—*Degree of soil limitations for*

Soil series and map symbols	Dwellings [1]	Sewage lagoons	Septic tank filter fields
Rosebloom: Rs	Severe: subject to flooding; wetness.	Moderate: moderate permeability.	Severe: subject to flooding; wetness.
Rosebloom, sandy variant: Ro	Severe: subject to flooding; wetness.	Moderate: moderate permeability.	Severe: subject to flooding; wetness.
Ruston:			
RuB	Slight	Moderate: moderate permeability; slope.	Slight
RuC2	Slight	Moderate: moderate permeability; slope.	Moderate: slope
RuD3	Moderate: slope	Severe: slope	Moderate to severe: slope.
Sweatman:			
SwD	Moderate: moderate shrink-swell potential; slope.	Severe: slope	Severe: slope; moderately slow permeability.
SwF	Severe: slope	Severe: slope	Severe: slope
Tippah:			
ThB	Severe: high shrink-swell potential.	Moderate: slope	Severe: slow permeability.
ThC	Severe: high shrink-swell potential.	Moderate: slope	Severe: slow permeability.
Trebloc: Tr	Severe: wetness	Slight	Severe: wetness
Una: Un	Severe: wetness; high shrink-swell potential; subject to flooding.	Slight	Severe: very slow permeability; subject to flooding.
Urbo: Ur	Severe: subject to flooding; high shrink-swell potential.	Slight	Severe: slow permeability; subject to flooding.
Wilcox:			
WcB	Severe: very high shrink-swell potential; wetness.	Moderate: slope	Severe: very slow permeability.
WlC	Severe: very high shrink-swell potential; wetness.	Moderate: slope	Severe: very slow permeability.
WlE2	Severe: very high shrink-swell potential; wetness.	Severe: slope	Severe: very slow permeability.

[1] Engineers and others should not apply specific values to the estimates given for bearing strength of soils.

town and country planning—Continued

Camp areas	Picnic areas	Playgrounds	Paths and trails	Local roads and streets
Severe: wetness; subject to flooding.	Severe: wetness; subject to flooding.	Severe: wetness; subject to flooding.	Severe: wetness; subject to flooding.	Severe: subject to flooding; wetness.
Severe: wetness; subject to flooding.	Severe: wetness; subject to flooding.	Severe: wetness; subject to flooding.	Severe: wetness; subject to flooding.	Severe: subject to flooding; wetness.
Slight	Slight	Moderate: slope	Slight	Slight.
Slight	Slight	Severe: slope	Slight	Moderate: slope.
Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope.
Moderate: slope; moderately slow permeability.	Moderate: slope	Severe: slope; moderately slow permeability.	Slight	Severe: poor traffic-supporting capacity.
Severe: slope	Severe: slope	Severe: slope	Moderate to severe: slope.	Severe: slope.
Moderate: slow permeability.	Slight	Moderate: slope	Slight	Severe: high shrink-swell potential.
Moderate: slow permeability.	Slight	Severe: slope	Slight	Severe: high shrink-swell potential.
Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness.
Severe: very slow permeability; wetness; subject to flooding.	Severe: wetness; subject to flooding.	Severe: wetness; subject to flooding; very slow permeability.	Severe: wetness; subject to flooding.	Severe: subject to flooding; high shrink-swell potential; wetness.
Severe: subject to flooding.	Moderate: wetness; subject to flooding 1 or 2 times during season of use.	Severe: subject to flooding.	Moderate: wetness; subject to flooding 2 or 3 times during season of use.	Severe: subject to flooding; high shrink-swell potential.
Severe: very slow permeability.	Moderate: wetness	Severe: very slow permeability.	Moderate: wetness	Severe: very high shrink-swell potential; wetness.
Severe: very slow permeability.	Moderate: wetness	Severe: slope	Moderate: wetness	Severe: very high shrink-swell potential; wetness.
Severe: very slow permeability.	Moderate: wetness	Severe: slope	Moderate: wetness; slope.	Severe: very high shrink-swell potential; wetness.

Figure 10.—This recreational lake, constructed on Ora loam, is used for fishing, swimming, and boating.

Figure 11.—Lake and concrete riser in Chickasaw County. The lake is used for flood control as well as for recreation. Trees in background are on Marietta soils.

Formation and Classification of the Soils

In this section the factors that have affected the formation and composition of soils in Chickasaw County are discussed. The soils are also classified according to higher categories.

Factors of Soil Formation

Soil is the product of the combined effects of parent material, climate, plant and animal life, topography, and time (*10*). The characteristics of a soil at any place depend upon a combination of these five environmental factors at the particular place. All of these factors affect the formation of every soil. In many places, however, one or two of the factors are dominant and fix most of the properties of a particular soil.

Parent material

Parent material, the unconsolidated mass in which a soil forms, largely determines the chemical and mineralogical composition of a soil. The soils of Chickasaw County formed mainly in sediment deposited in the Gulf of Mexico before the water receded from the Coastal Plain (*3*). This sediment consists of sand, silt, and clay. The geologic formations now at the surface are of Cretaceous or Paleocene age. In the eastern part of the county, Okolona, Brooksville, Kipling, and other soils formed in beds of acid clay and calcareous clay over thick beds of Selma Chalk. In the central part of the county, Ora, Prentiss, and Ruston soils formed in noncalcareous sand, silt, and clay. In the northwestern part of the county a mantle of silt overlies Porters Creek Clay.

The soils along the larger streams in the county formed in alluvium, or material transported and redeposited by streams. Much of the alluvium along Tallabinnela, Mattubby, and Chuquatonchee Creeks was derived from clayey material, but the alluvium along Houlka, Long, and Soctahoma Creeks was derived from loamy to sandy sediments.

Climate

Climate affects the formation of soils by its effect on the physical, chemical, and biological relationships in the soil, mainly through the influence of precipitation and temperature. Water dissolves minerals and supports biological and organic residue and distributes them through the soil profile. Percolation of water helps distribute the weathering products in the soil or may remove them. The amount of water that actually percolates through the soil over a broad area depends mainly on the amount of rainfall, the relative humidity, and the length of the frost-free period. At a given point, the amount of downward percolation is also affected by physiographic position of the soil and by soil permeability.

Temperature influences the kind of organisms and their growth as well as the speed of physical and chemical reactions in the soil. These reactions are also influenced by the warm, moist weather that prevails most of the year. Water from the relatively high precipitation moves clay particles and soluble materials downward. The mature soils in this county have been strongly leached, and leaching is progressing in the young soils.

In this county the soils are moist. During most of the year they are subject to leaching. Freezing and thawing have had little effect on weathering and soil-forming processes. The average maximum temperature is about 75.8° F., and the average minimum temperature is 52.2°. Rainfall is abundant, is slightly greater in spring and summer than in fall and winter, and averages about 52 inches each year.

Plant and animal life

Micro-organisms, plants, earthworms, and all other organisms that live on and in the soil have an important effect on its formation. Bacteria, fungi, and other micro-organisms aid in weathering the rock and decomposing the organic matter. The larger plants serve to alter the microclimate, to furnish organic matter, and to transfer elements from the subsoil to the surface layer. The kinds and numbers of plants and animals that live on and in the

soil are determined mainly by the climate, but partly by parent material, relief, and age of the soil.

Not much is known of the fungi and other micro-organisms in the soils of this county, except that they are mainly in the topmost few inches of soil material. Earthworms and other small invertebrates are more active in the surface layer, where they continually mix the soil, than in other layers. Mixing of soil material by rodents does not appear to have been of much consequence in this county.

In Chickasaw County the native vegetation was pine-hardwood forest and grass-hardwood forest. Vegetation in the pine-hardwood forest helped to produce soils that are low to medium in content of organic matter. The soils have a lower content of organic matter in dry areas than in moist areas. Pine, oak, elm, sweetgum, and hackberry trees are common in these dry areas. Water oak grow in the wetter places and cottonwood and willow in the overflow areas. The soils are somewhat higher in content of organic matter where the native vegetation was grass-hardwood forest.

Gains in organic matter and nitrogen in the soil, gains or losses in plant nutrients, and changes in structure and porosity are among the changes brought about by living organisms.

Topography

Topography is largely determined by the kind of geologic formation underlying an area, the geologic history of the general area, and the effect of dissection by rivers and streams. It influences the formation of soils through its effect on drainage, erosion, plant cover, soil temperature, and vegetation. This influence is modified by the other four factors of soil formation.

The slopes in Chickasaw County range from 0 to 35 percent. On uplands, the Ruston, Atwood, and Ora soils have slopes of less than 17 percent and have a thick, well-defined profile.

Within a given length of time, on a given parent material, and under the same kind of vegetation, the degree of profile development that takes place probably depends largely on the amount of water passing through the soil. The soils that show the greatest profile development occur in flat areas where the parent material is medium textured or moderately fine textured, and permeability of the substratum is such that the excess ground water is carried off slowly. In some poorly drained and waterlogged areas, however, soils that have a strongly developed profile have formed.

Time

Generally a long time is required for formation of a soil that has distinct horizons. The differences in length of time that the parent material has been in place, therefore, are commonly reflected in the degree of development of the soil profile.

The soils that formed in old alluvium on high stream terraces and benches have been in place long enough to have a well-defined profile. Along the drainageways throughout the county, some soils have been modified only slightly, if at all, by the soil-forming processes.

Examples of young soils that lack profile development are those of the Robinsonville series. These soils formed in moderately coarse textured to medium-textured material on flood plains. Stratification and bedding planes are evident. Examples of older soils that formed in alluvium are those of the Marietta series. The Marietta soils are medium textured to moderately fine textured and have a weakly developed soil profile. Examples of older soils that formed on uplands are those of the Ruston series. Ruston soils are medium textured to moderately fine textured and have distinct horizons.

Processes of Soil Horizon Differentiation

Several processes were involved in the formation of horizons in soils of this county. These processes are (1) the accumulation of organic matter, (2) leaching of calcium carbonates and bases, (3) the liberation, reduction, and transfer of iron, and (4) the formation and translocation of silicate clay minerals. In most soils more than one of these processes have been active in the development of horizons.

The accumulation of organic matter in the upper part of the profile is important in the formation of an A1 horizon. The soils of this county are mainly low to very low in content of organic matter.

Carbonates and bases have been leached from most of the soils. Soil scientists are generally agreed that leaching of bases from the upper horizons of a soil usually precedes translocation of silicate clay minerals. Most of the soils in this county are moderately to strongly leached, and this leaching has contributed to the development of horizons.

The reduction and transfer of iron, a process called gleying, is evident in the poorly drained Trebloc, Adaton, and Rosebloom soils of this county. The gray color in the subsoil indicates the reduction and loss of iron. Some horizons have reddish-brown mottles and concretions, both of which indicate segregation of iron. Horizons of the Prentiss and Brewton soils are examples.

In some of the soils of this county, the translocation of silicate clay minerals has contributed to the development of horizons. In these soils the illuviated A2 horizon is lower in content of clay and is generally lighter colored than the B horizon. In most places the B horizon contains accumulated clay or has clay films in pores and on the surfaces of peds. These soils were probably leached of carbonates and soluble salts to a considerable extent before translocation of silicate clays took place. The leaching of bases and the translocation of silicate clays are among the more important processes in the formation of different horizons in the soils of this county. Examples of soils that have translocated silicate clays in the B horizon in the form of clay films are those of the Ruston, Ora, and Atwood series.

Classification of the Soils

Classification consists of an orderly grouping of soils according to a system designed to make it easier to remember soil characteristics and interrelationships. Classification is useful in organizing and applying the results of experience and research.

Soils are placed in narrow classes for discussion in detailed soil surveys and for application of knowledge within farms and fields. The many thousands of narrow classes are then grouped into progressively fewer and broader classes in successively higher categories, so that information can be applied to large geographic areas.

Two systems of classifying soils have been used in the United States in recent years. The older system was adopted in 1938 (*2*) and was revised later (*9*). The system currently used by the National Cooperative Soil Survey was developed in the early sixties and was adopted in 1965 (*13*), and supplements were issued in March 1967 and in September 1968. The system is under continual study (*6*). Readers interested in the development of the system should refer to the latest literature available.

Table 9 shows the classification of each soil series of the county by family, subgroup, and order, according to the current system.

The current system of classification has six categories. Beginning with the most inclusive, these categories are the order, the suborder, the great group, the subgroup, the family, and the series. The criteria for classification are soil properties that are observable or measurable, but the properties are selected so that soils of similar genesis are grouped together. The placement of some soil series in the current system of classification, particularly in families, may change as more precise information becomes available.

ORDER: Ten soil orders are recognized in the current system. They are Entisols, Vertisols, Inceptisols, Aridisols, Mollisols, Spodosols, Alfisols, Ultisols, Oxisols, and Histosols. The properties used to differentiate the soil orders are those that tend to give broad climatic groupings of soils. The two exceptions, the Entisols and Histosols, occur in many different climates. Each order is named with a word of three or four syllables ending in sol, for example Ent-i-sol. The six orders represented in Chickasaw County are Entisols, Vertisols, Inceptisols, Mollisols, Alfisols, and Ultisols.

Entisols are recent soils. They are without genetic horizons, or have only the beginning of such horizons. In this county this order includes many of the soils that were previously classified as Alluvial soils and Regosols.

Vertisols have a high content of swelling and shrinking clay that cracks in dry weather. Okolona and Brooksville soils are unstable, are high in content of Montmorillonitic clay, and are placed in the Vertisol order.

Inceptisols occur mainly on young, but not recent, land surfaces. Their name is derived from Latin *inceptum* for beginning. In this county the order includes soils that were formerly called Alluvial soils and some that were formerly called Low-Humic Gley soils. Leeper and Urbo soils are in this order.

Mollisols have a dark-colored surface layer that is high in base saturation. Catalpa soils are classified in this order.

Alfisols have a clay-enriched B horizon that is high in base saturation. In this county this order includes most of the soils that formerly were called Gray-Brown Podzolic soils and Alluvial soils. The Kipling soils are classified in this order.

TABLE 9.—*Classification of soil series in Chickasaw County, Miss.*

Series	Family	Subgroup	Order
Adaton	Fine-silty, mixed, thermic	Typic Ochraqualfs	Alfisols.
Arkabutla	Fine-silty, mixed, acid, thermic	Aeric Fluvaquents	Entisols.
Atwood	Fine-silty, mixed, thermic	Typic Paleudalfs	Alfisols.
Belden	Fine-silty, mixed, nonacid, thermic	Aeric Fluvaquents	Entisols.
Brewton	Coarse-loamy, siliceous, thermic	Glossaquic Fragiudults	Ultisols.
Brooksville	Fine, montmorillonitic, thermic	Aquic Chromuderts	Vertisols.
Cahaba	Fine-loamy, siliceous, thermic	Typic Hapludults	Ultisols.
Catalpa [1]	Fine, mixed, thermic	Fluvaquentic Hapludolls	Mollisols.
Demopolis	Loamy-skeletal, carbonatic, thermic, shallow	Typic Udorthents	Entisols.
Falkner	Fine-silty, siliceous, thermic	Aquic Paleudalfs	Alfisols.
Kipling	Fine, montmorillonitic, thermic	Vertic Hapludalfs	Alfisols.
Leeper	Fine, montmorillonitic, nonacid, thermic	Vertic Haplaquepts	Inceptisols.
Marietta	Fine-loamy, mixed, thermic (siliceous)	Fluvaquentic Eutrochrepts	Inceptisols.
Mashulaville	Coarse-loamy, siliceous, thermic	Typic Fragiaquults	Ultisols.
Mayhew	Fine, montmorillonitic, thermic	Vertic Ochraqualfs	Alfisols.
Okolona	Fine, montmorillonitic, thermic	Typic Chromuderts	Vertisols.
Ora	Fine-loamy, mixed, thermic	Typic Fragiudults	Ultisols.
Prentiss	Coarse-loamy, siliceous, thermic	Glossic Fragiudults	Ultisols.
Robinsonville	Coarse-loamy, mixed, nonacid, thermic	Typic Udifluvents	Entisols.
Rosebloom	Fine-silty, mixed, acid, thermic	Typic Fluvaquents	Entisols.
Rosebloom, sandy variant	Coarse-loamy, siliceous, nonacid, thermic	Typic Fluvaquents	Entisols.
Ruston	Fine-loamy, siliceous, thermic	Typic Paleudults	Ultisols.
Sweatman	Clayey, mixed, thermic	Typic Hapludults	Ultisols.
Tippah	Fine-silty, mixed, thermic	Aquic Paleudalfs	Alfisols.
Trebloc	Fine-silty, siliceous, thermic	Typic Paleaquults	Ultisols.
Una	Fine, mixed, acid, thermic	Typic Haplaquepts	Inceptisols.
Urbo	Fine, mixed, acid, thermic	Aeric Haplaquepts	Inceptisols.
Wilcox	Fine, montmorillonitic, thermic	Vertic Hapludalfs	Alfisols.

[1] These soils have a slightly thicker A horizon than is within the range defined for the series, but this difference does not alter their usefulness and behavior.

Ultisols have a clay-enriched B horizon that has a base saturation of less than 35 percent. The percentage of base saturation decreases with increasing depth. Many soils in Chickasaw County are classified in this order. The Ruston, Prentiss, Ora, and Sweatman soils are examples of Ultisols.

SUBORDER: Each order is divided into suborders, primarily on the basis of those soil characteristics that seem to produce classes having the greatest genetic similarity. The suborders narrow the broad climatic range permitted in the order. The soil properties used to separate suborders mainly reflect either the presence or absence of waterlogging or soil differences resulting from the climate or vegetation. The names of suborders have two syllables. The last syllable indicates the order. An example is Fluvents (Flu, meaning flood plain; and ent, from Entisols).

GREAT GROUP: Soil suborders are divided into great groups on the basis of uniformity in the kinds and sequence of major soil horizons and features. The horizons used to make separations are those in which clay, iron, or humus has accumulated or those that have pans that interfere with the growth of roots or the movement of water. The features used are the self-mulching properties of clay, soil temperature, major differences in chemical composition (mainly calcium, magnesium, sodium, and potassium), and the like. The names of great groups have three or four syllables and are made by adding a prefix to the name of the suborder. An example is Udifluvent (Udi, meaning humid; flu, for flood plain; and ent, for Entisol).

SUBGROUPS: Great groups are divided into subgroups, one representing the central (typic) segment of the group and others, called intergrades, that have properties of one great group and also one or more properties of another great group, suborder, or order. Subgroups may also be made in those instances where soil properties intergrade outside of the range of another great group, subgroup, or order. The names of subgroups are derived by placing one or more adjectives before the name of the great group. An example is Typic Udifluvent (typical Udifluvent).

FAMILY: Families are established within each subgroup primarily on the basis of properties that affect the growth of plants or the behavior of soils in engineering uses. Among the properties considered are texture, mineralogy, reaction, soil temperature, permeability, thickness of horizons, and consistence. A family name consists of a series of adjectives that precede the subgroup name. The adjectives are the class names for texture, mineralogy, and other properties that are used to differentiate families. An example is the coarse-loamy, mixed, nonacid, thermic family of Typic Udifluvents.

SERIES: The series is a group of soils having major horizons that, except for the texture of the surface layer, are similar in important characteristics and arrangement in the profile. The soil series generally is given the name of a geographic location near the place where a soil of that series was first observed and mapped. The Okolona series is an example.

General Nature of the County

This section briefly describes the development of Chickasaw County and gives facts about the industries and the transportation facilities. It also discusses physiography, relief, drainage, geology, and climate and describes farming in the county. Agricultural statistics used are from records of the U.S. Bureau of the Census.

Chickasaw County was created by act of the legislature on February 9, 1836, from land ceded to the United States by the Chickasaw Indians. In about 1852 approximately one third of the area in the county was transferred to Calhoun County when that county was formed; and later in 1871, approximately 190 square miles was transferred to Clay County when it was created.

Incorporated towns are Houston, Okolona, and Houlka. Houston and Okolona are the county seats. Several smaller villages are in the county.

The population of the county has declined since World War II. The decrease has been caused mainly by people moving away from farms.

Farming is the main enterprise, but the county also has several industries, among which are garment factories, sawmills, manufacturers of tool handles, mostly from hickory (fig. 12), furniture factories, a box company, a fertilizer plant, and several other smaller plants.

Transportation facilities in the county are good. Bus-lines serve the county, and railway lines are located on both the eastern and the western sides of the county. The county is traversed from north to south by State Highway No. 15 and by U.S. Highway 45 and from east to west by State Highways No. 8 and 32. State Highway No. 41 crosses the northeastern corner and Highway No. 341 crosses the southwestern corner. The Natchez Trace Parkway also passes through the county.

Physiography, Relief, and Drainage

Chickasaw County is wholly within the Southern Coastal Plain. It lies, in part, in the Black Prairie Belt, Pontotoc Ridge, Flatwoods, and Red Hills Belt (*3*).

The Black Prairie part of the county is undulating or rolling and has relatively slight relief. Generally, the relief is 10 to 15 feet, and maximum relief is not more than 40 feet. The topographic features are wide, flat-bottomed valleys and low, rounded, gently sloping hills. The steeper areas are along the streams on the western side of the Black Prairie section.

The Pontotoc Ridge is to the west of the Black Prairie section and is characterized by nearly level to gently sloping ridgetops, steep side slopes, and narrow valleys.

The Flatwoods are west of the Pontotoc Ridge. This area is characterized by low, level, and relatively smooth surfaces and some fairly broad bottoms. A few patchy areas of sandy hills where scrub oak grow indicate that this low land was once covered with a layer of sand. The surface of the Flatwoods is a less perfect peneplain than that of the Black Prairie Belt, and unlike that area, it was covered with a fine growth of pines and hardwoods in its natural state.

Figure 12.—**Plant in which tool handles are manufactured. The hickory bolts in the foreground are made into tool handles.**

Southwest of the Flatwoods is the Red Hills Belt. The surface of this area is highly dissected. The ridgetops are narrow, the side slopes are steep, and the valleys are narrow.

Chickasaw County lies within the drainage basin of the Tombigbee, Skuna, and Yalobusha Rivers. About 90 percent of the county is in the watershed of the Tombigbee River and is drained by its tributaries—the Chuquatonchee, Houlka, Long, Mattubby, and Tallabinnela Creeks. These creeks all flow in a southeasterly direction. The western part of the county is drained by the Yalobusha and Skuna Rivers and their tributaries. These flow in a westerly direction.

Geology

The geologic formations at the surface in Chickasaw County belong to the Upper Cretaceous Period of the Mesozoic Era and to the Paleocene Epoch of the Tertiary Period (*7*). The formations in ascending order are the Selma Group and Midway Group. The strata all dip gently to the west and southwest.

Selma Chalk underlies the eastern part of the county. It lies unconformably on the Tombigbee Sand Member of the Eutaw Formation, and the contact is marked by a basal conglomerate consisting of phosphatic nodules, phosphatic molds of fossils, and oyster shells, some of which were reworked from Tombigbee Sand. The chalk is limestone that ranges from soft and argillaceous or sandy to hard and nearly pure. The calcium carbonate content ranges from 98 percent in a few places to almost nothing in others.

The Ripley Formation is in areas west of those underlain by Selma Chalk. It is predominantly marine sand and sandstone, but beds of clay are common. Some of the beds of sand contain enough calcium carbonate to be termed sandy limestone. The sand and sandstone, which range from fine to coarse in particle size, are more or less micaceous, glauconitic, argillaceous, and calcareous. They range from loose sand through compact and partly indurated to hard sandstone. The sandstone, as a rule, is calcareous in greater or lesser degree. The clay is commonly laminated and interbedded with thin layers of micaceous sand.

The Clayton Formation overlies the Prairie Bluff and Owl Creek Formations. It is greenish-gray, coarsely glauconitic sandy clay and, at the base, contains many phosphatic molds of fossils.

Porters Creek Formation is in the extreme western part of the county in an area known as the Flatwoods. It is gray clay that is slightly glauconitic and contains lenses of micaceous sand.

Climate [7]

Chickasaw County has a warm, humid climate and abundant rainfall. Temperatures range from an average low of about 36° F. in January to an average high of about 94° in August. The year-round relative humidity is 60 to 100 percent of saturation 64 percent of the time. Rainfall averages about 52 inches per year. Table 10 shows data on temperature and precipitation at Houston that have been published previously in the Monroe County, Mississippi, soil survey. Table 11 shows the probability of low temperatures in spring and fall. These data are representative of Chickasaw County.

The temperature falls to 32° on an average of 50 days in winter and rises to 90° or higher on an average of 90 days in summer. The temperature is below 50°, 44 percent of the time from November through April. From May through October the temperature is 90° or higher 12 percent of the time. The temperature falls to 20° at least once in 9 out of 10 years. The lowest temperature ever recorded was −15° on February 13, 1899; the highest was 114° on July 13, 1930.

Table 10 shows a wide range in temperature. On an average of 2 years in 10 there will be at least 4 days in August when the temperature is 102° or higher. The other extreme occurs in January when, on an average of 2 years in 10, there will be at least 4 days that have a temperature of 17° or lower. If the soil is wet, as is common in January, a temperature this low causes the ground to freeze and to heave.

Table 11 lists the probabilities of low temperatures in spring and in fall. The table also gives probabilities of temperatures of 36° and 40° in spring and fall, because if the sky is clear and the air is calm, frost can form near the ground at night and adversely affect seeds in beds and young plants, even though the temperature registered on a thermometer 5 feet above ground in a shelter is higher than 32°. On cold, windy nights, the temperature on hilltops is the same as or lower than the temperature that is likely to occur at the considerably lower elevations in the valleys, the open country, and the larger towns.

Winter and spring are the wettest seasons; fall is the driest. Dry weather in the fall is especially beneficial to harvesting operations and to the planting of winter grain. However, in an unusually dry fall, germination of grain is hindered at times or planting is delayed too long. Rains normally occur as brief showers along the leading edge of a mass of cold air; however, rains in summer come as local thundershowers that may bypass one area for days,

[7] Prepared by the State climatologist for Mississippi, National Weather Service, U.S. Department of Commerce.

TABLE 10. *Temperature and precipitation data*

Month	Temperature[1]				Precipitation[1]				
	Average daily maximum	Average daily minimum	Two years in 10 will have at least 4 days with—		Average total	One year in 10 will have—		Days with snow cover	Average depth of snow on days with snow cover
			Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—		Less than—	More than—		
	°F.	*°F.*	*°F.*	*°F.*	*Inches*	*Inches*	*Inches*	*Number*	*Inches*
January	56. 6	35. 8	76	17	5. 57	2. 11	10. 24	1	4
February	59. 4	37. 7	74	23	5. 53	2. 37	9. 25	1	4
March	66. 5	43. 4	81	28	6. 01	3. 68	9. 40	(2)	2
April	75. 7	51. 8	86	37	4. 70	2. 09	8. 20	0	0
May	83. 7	59. 7	93	48	3. 71	1. 98	5. 94	0	0
June	91. 3	67. 2	100	58	4. 02	1. 61	6. 99	0	0
July	93. 0	70. 4	100	64	4. 88	1. 60	9. 56	0	0
August	93. 6	69. 4	102	60	3. 08	. 76	5. 24	0	0
September	88. 0	62. 9	98	49	2. 89	. 65	5. 89	0	0
October	78. 6	51. 1	90	37	2. 60	. 35	4. 50	0	0
November	65. 6	40. 5	80	23	3. 97	1. 36	6. 36	(2)	2
December	57. 3	36. 4	73	20	4. 88	2. 58	9. 23	(2)	1
Year	75. 8	52. 2	[3] 102	[4] 11	51. 85	36. 66	67. 28	2	4

[1] Data previously published in the Monroe County, Mississippi, soil survey, but they are representative of Chickasaw County.
[2] Less than 0.5 day.
[3] Average annual highest temperature.
[4] Average annual lowest temperature.

TABLE 11.—*Probabilities of low temperatures in spring and in fall*

Probability[1]	Dates for given probability and temperature[1]					
	20° F. or lower	24° F. or lower	28° F. or lower	32° F. or lower	36° F. or lower	40° F. or lower
Spring:						
1 year in 10 later than	Feb. 21	Mar. 8	Mar. 28	Apr. 17	Apr. 28	May 10
2 years in 10 later than	Feb. 12	Mar. 1	Mar. 21	Apr. 10	Apr. 21	May 3
5 years in 10 later than	Jan. 27	Feb. 15	Mar. 7	Mar. 27	Apr. 7	Apr. 19
Fall:						
1 year in 10 earlier than	Nov. 26	Nov. 13	Oct. 26	Oct. 18	Oct. 5	Sept. 29
2 years in 10 earlier than	Dec. 3	Nov. 19	Nov. 1	Oct. 24	Oct. 11	Oct. 5
5 years in 10 earlier than	Dec. 16	Dec. 1	Nov. 12	Nov. 4	Oct. 22	Oct. 16

[1] Previously published in the Monroe County, Mississippi, soil survey but representative of Chickasaw County.

even weeks, but bring to another area enough moisture for corn and other crops. Dry weather and plentiful sunshine in summer are especially beneficial to cotton.

A wide range in monthly rainfall is shown in table 10. The wettest year of record was 1932, when 76.82 inches of rain fell; and the driest year was 1943, which had a total rainfall of 32.40 inches. The wettest month was December 1926, when 18.99 inches of rainfall was recorded. Normally October is the driest month, and on an average of 1 year in 10, rainfall during that month is less than 0.35 inch; but once in about every 10 years October has more than 4.50 inches of rain. Normally January is the wettest month, and on an average of one year in 10, total rainfall in that month is more than 10.24 inches. Once in about every 10 years, however, January has less than 2.11 inches.

Snow is of little economic importance in most years, but 14 inches of snow fell on February 13, 1960. This was the heaviest snowfall ever recorded in the county.

Relative humidity is high, both in winter and in summer. It is 80 percent or higher in 36 percent of the hours in which the temperature is below 50° F. It never exceeds 79 percent when the temperature is 90° or higher, but it ranges from 50 to 79 percent for 26 percent of the time during such periods. Thus, in marked contrast to the

coastal part of the State, the relative humidity in Chickasaw County is less than 50 percent in about 75 percent of the hours when the temperature is 90° or higher.

Although tropical storms and hurricanes have never caused winds of gale or hurricane force in Chickasaw County, heavy rains resulting from these storms have caused floods and have ruined unharvested crops. In the last 45 years there have been at least 16 damaging thunderstorms and 7 severe hailstorms in Chickasaw County.

Farming

Farming is the main source of income in this county. The main crops harvested are cotton, corn, soybeans, sweetpotatoes, and small grain. Crops were harvested from 51,049 acres in 1964 and from 58,847 acres in 1969. Livestock is raised on many farms. In 1964, the county had 487 farms on which cotton was the main source of income; 17 farms on which poultry and poultry products were the main source of income; 89 farms where dairy products were the main source; and 124 farms where livestock and livestock products, other than poultry and dairy products, were the main source of income. The county also had 85 general farms and 632 miscellaneous and unclassified farms.

The trend in the last few years has been an increase in the number of livestock raised and in the amount of timber products harvested. The number of farms has decreased, and size of farms has increased from 160 acres in 1964 to 224 acres in 1969. These trends are reflected in changes in the use of the land; in the principal crops grown; and in the size, number, and type of farms. In 1969, 873 farms were in the county compared with 1,500 in 1964. In 1969 a total of 195,463 acres was in farms as compared with 240,155 acres in 1964.

The acreage in cotton and corn has decreased during the past few years, and the acreage in soybeans and hay has increased. Some of the soils on bottom lands that were formerly used for cotton are now used to grow soybeans. In 1969 cotton was harvested from 10,063 acres, compared with 14,154 acres in 1964; corn was harvested from 2,345 acres compared with 7,846 acres in 1964; soybeans were harvested from 32,403 acres compared with 6,403 acres in 1964; hay was harvested from 17,541 acres compared with 9,775 acres in 1964; and sorghum was harvested from 458 acres, compared with 26 acres in 1964.

Literature Cited

(1) American Association of State Highway Officials.
1961. standard specifications for highway materials and methods of sampling and testing. Ed. 8, 2 v., illus.

(2) Baldwin, Mark, Kellogg, Charles, E., and Thorp, James.
1938. soil classification. U.S. Dept. Agr. Yearbook, 978–1001, illus.

(3) Fenneman, N. M.
1938. physiography of eastern united states. 714 pp., illus. New York and London.

(4) Mississippi Forestry Commission.
1967. facts at a glance. 4 pp., illus.

(5) Portland Cement Association.
1962. pca soil primer. 52 pp., illus. Chicago.

(6) Simonson, Roy W.
1962. soil classification in the united states. Sci. 137: 1027–1034.

(7) Stephenson, Lloyd W., and Monroe, Watson H.
1940. the upper cretaceous deposits of mississippi. State Geol. Surv. Bul. No. 40, 296 pp., illus.

(8) Sternitzke, Herbert S.
1962. mississippi forest atlas. U.S. Forest Service, Southern Forest Expt. Sta., 48 pp., illus.

(9) Thorp, J., and Smith, Guy D.
1949. higher categories of soil classifications order, suborder, and great soil groups. Soil Sci. 67: 117–126.

(10) United States Department of Agriculture.
1938. soils and men. U.S. Dept. Agr. Yearbook, 1,232 pp., illus.

(11) ———
1951. soil survey manual. U.S. Dept. Agr. Handbook No. 18, 503 pp., illus. [Supplement issued in May 1962]

(12) ———
1958. mississippi forests. Forest Survey Release 81. Southern Forest Expt. Sta., 52 pp., illus.

(13) ———
1960. soil classification, a comprehensive system, 7th approximation. 265 pp., illus. [Supplements issued in March 1967 and September 1968]

(14) ———
1965. silvics of forest trees of the united states. U.S. Dept. Agr. Handbook No. 271, 762 pp., illus.

(15) ———
1968. soil survey interpretations for woodlands in the southern coastal plain and blackbelt areas of alabama, mississippi, and tennessee. Soil Conservation Service Progress Rept. W–1 for July, 21 pp.

(16) ———
1968. soil survey interpretations for woodlands in the southern mississippi valley silty uplands of arkansas, kentucky, mississippi, missouri, and tennessee. Soil Conservation Service Progress Rept. W–4 for October, 18 pp.

(17) ———
1969. forest statistics for mississippi counties. Forest Service Resource Bul. SO–15, 24 pp., illus.

(18) United States Department of Defense.
1968. unified soil classification system for roads, airfields, embankments, and foundations. MIL–STD–619B, 30 pp., illus.

(19) Van Hooser, Dwane D.
1968. mississippi forestry industry. U.S. Forest Service, Southern Expt. Sta. Resource Bul. SO–12, 25 pp., illus.

Glossary

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates such as crumbs, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Available water capacity (also termed available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of clay on the surface of a soil aggregate. Synonyms: clay coat, clay skin.

Claypan. A compact, slowly permeable soil horizon that contains more clay than the horizon above and below it. A claypan is commonly hard when dry and plastic or stiff when wet.

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncolored when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard and brittle; little affected by moistening.

Contour farming. Plowing, cultivating, planting, and harvesting in rows that are at right angles to the natural direction of the slope or that are parallel to terrace grade.

Diversion, or diversion terrace. A ridge of earth, generally a terrace, that is built to divert runoff from its natural course and, thus, to protect areas downslope from the effects of such runoff.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Fragipan. A loamy, brittle, subsurface horizon that is very low in organic matter and clay but is rich in silt or very fine sand. The layer is seemingly cemented. When dry, it is hard or very hard and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick; they generally occur below the B horizon, 15 to 40 inches below the surface.

Gleyed soil. A soil in which waterlogging and lack of oxygen have caused the material in one or more horizons to be neutral gray in color. The term "gleyey" is applied to soil horizons with yellow and gray mottling caused by intermittent waterlogging.

Graded rows. Rows arranged across the slope at a gradient that causes runoff to flow at a nonerosive velocity.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes. These are the major horizons:

O horizon.—The layer of organic matter on the surface of a mineral soil. This layer consists of decaying plant residues.

A horizon.—The mineral horizon at the surface or just below an O horizon. This horizon is the one in which living organisms are most active and therefore is marked by the accumulation of humus. The horizon may have lost one or more of soluble salts, clay, and sesquioxides (iron and aluminum oxides).

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of change from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics caused (1) by accumulation of clay, sesquioxides, humus, or some combination of these; (2) by prismatic or blocky structure; (3) by redder or stronger colors than the A horizon; or (4) by some combination of these. Combined A and B horizons are usually called the solum, or true soil. If a soil lacks a B horizon, the A horizon alone is the solum.

C horizon.—The weathered rock material immediately beneath the solum. In most soils this material is presumed to be like that from which the overlying horizons were formed. If the material is known to be different from that in the solum, a Roman numeral precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock usually underlies a C horizon but may be immediately beneath an A or B horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material as contrasted with percolation, which is movement of water through soil layers or material.

Leaching. The removal of soluble materials from soils or other material by percolating water.

Loess. Fine-grained material, dominantly of silt-sized particles, that has been deposited by wind.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineralogical, and biological properties of the various horizons, and their thickness and arrangement in the soil profile.

Mottling, soil. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are these: *fine,* less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Natural soil drainage. Refers to the conditions of frequency and duration of periods of saturation or partial saturation that existed during the development of the soil, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven different classes of natural soil drainage are recognized.

Excessively drained soils are commonly very porous and rapidly permeable and have a low water-holding capacity.

Somewhat excessively drained soils are also very permeable and are free from mottling throughout their profile.

Well-drained soils are nearly free from mottling and are commonly of intermediate texture.

Moderately well drained soils commonly have a slowly permeable layer in or immediately beneath the solum. They have uniform color in the A and upper B horizons and have mottling in the lower B and the C horizons.

Imperfectly or somewhat poorly drained soils are wet for significant periods but not all the time, and in Podzolic soils commonly have mottlings below 6 to 16 inches, in the lower A horizon and in the B and C horizons.

Poorly drained soils are wet for long periods and are light gray and generally mottled from the surface downward, although mottling may be absent or nearly so in some soils.

Very poorly drained soils are wet nearly all the time. They have a dark-gray or black surface layer and are gray or light gray, with or without mottling, in the deeper parts of the profile.

Parent material. Disintegrated and partly weathered rock from which soil has formed.

Permanent pasture. Pasture that is on the soil for a long time, in contrast to rotation pasture, which is on the soil only a year or two because it is grown in rotation with other crops.

Permeability. The quality of a soil horizon that enables water or air to move through it. Terms used to describe permeability are as follows: *Very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

Productivity (of soil). The present capability of a soil for producing a specified plant or sequence of plants under a specified system of management. It is measured in terms of output, or harvest, in relation to input of production for the specific kind of soil under a specified system of management.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. An acid, or "sour," soil is one that gives an acid reaction; an alkaline soil is one that is alkaline in reaction. In words, the degrees of acidity or alkalinity are expressed thus:

	pH		*pH*
Extremely acid	Below 4.5	Mildly alkaline	7.4 to 7.8
Very strongly acid	4.5 to 5.0	Moderately alkaline	7.9 to 8.4
Strongly acid	5.1 to 5.5	Strongly alkaline	8.5 to 9.0
Medium acid	5.6 to 6.0	Very strongly alkaline	9.1 and higher
Slightly acid	6.1 to 6.5		
Neutral	6.6 to 7.3		

Relief. The elevations or inequalities of a land surface, considered collectively.

Sand. Individual rock or mineral fragments in soils having diameters ranging from 0.05 to 2.0 millimeters. Most sand grains consist of quartz, but they may be of any mineral composition. The textural class name of any soil that contains 85 percent or more sand and not more than 10 percent clay.

Silt. Individual mineral particles in a soil that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). Soil of the silt textural class is 80 percent or more silt and less than 12 percent clay.

Soil variant. A soil having properties sufficiently different from those of other known soils to suggest establishing a new soil series, but a soil of such limited known area that creation of a new series is not believed to be justified.

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in mature soil includes the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristic of the soil are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. Technically, the part of the soil below the solum.

Surface layer. A term used in nontechnical soil descriptions for one or more layers above the subsoil. Includes A horizon and part of B horizon; has no depth limit.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The condition of the soil in relation to the growth of plants, especially soil structure. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable, granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil. A presumed fertile soil or soil material, or one that responds to fertilization, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

GUIDE TO MAPPING UNITS

For a full description of a mapping unit, read both the description of the mapping unit and that of the soil series to which the mapping unit belongs. In referring to a capability unit, read the introduction to the section it is in for general information about its management. Other information is given in tables as follows:

Acreage and extent, table 1, p. 6.
Estimated yields, table 2, p. 31.
Woodland suitability groups, table 3, p. 34.
Suitability of soils for wildlife, table 4, p. 38.
Engineering uses of the soils, tables 5, 6, and 7, pp. 40 through 51.
Town and country planning, table 8, p. 54.

Map symbol	Mapping unit	Described on page	Capability unit Symbol	Woodland suitability group Number
Ad	Adaton silt loam	6	IIIw-1	3w9
Ar	Arkabutla silt loam	7	IIw-6	1w8
AtA	Atwood silt loam, 0 to 2 percent slopes	8	I-1	2o7
AtB	Atwood silt loam, 2 to 5 percent slopes	8	IIe-1	2o7
AtC2	Atwood silt loam, 5 to 8 percent slopes, eroded	8	IIIe-1	2o7
AtD3	Atwood silt loam, 8 to 17 percent slopes, severely eroded	8	VIe-1	2o7
Be	Belden silty clay loam	9	IIw-6	1w8
Br	Brewton fine sandy loam	9	IIIw-3	2w8
BvA	Brooksville silty clay, 0 to 2 percent slopes	10	IIw-2	4c2c
BvB	Brooksville silty clay, 2 to 5 percent slopes	10	IIIe-3	4c2c
CaF	Cahaba fine sandy loam, 12 to 35 percent slopes	11	VIIe-1	3r3
Ct	Catalpa silty clay loam	12	IIw-4	1w5
DeC3	Demopolis silty clay loam, 2 to 8 percent slopes, severely eroded	12	VIe-4	4d3c
DkE3	Demopolis-Kipling complex, 8 to 25 percent slopes, severely eroded	12	VIe-5	4d3c
Fa	Falkner silt loam	13	IIIw-2	2w8
GdE	Gullied land-Demopolis complex, 8 to 25 percent slopes	14	VIIe-5	----
GrE	Gullied land-Ruston complex, 5 to 30 percent slopes	14	VIIe-4	----
KlA	Kipling silt loam, 0 to 2 percent slopes	15	IIw-2	2c8
KlB2	Kipling silt loam, 2 to 5 percent slopes, eroded	15	IIIe-8	2c8
KlC2	Kipling silt loam, 5 to 8 percent slopes, eroded	15	IVe-2	2c8
KpB3	Kipling silty clay loam, 2 to 5 percent slopes, severely eroded	16	IVe-3	2c8
KsD3	Kipling silty clay, 5 to 12 percent slopes, severely eroded	16	VIe-3	2c8
Le	Leeper silty clay loam	16	IIw-4	1w6
Ma	Marietta fine sandy loam	17	IIw-3	1w5
Mh	Mashulaville loam	18	IVw-1	3w9
Mw	Mayhew silt loam	18	IIIw-1	2w9
OkA	Okolona clay, 0 to 2 percent slopes	19	IIs-1	4c2c
OkB	Okolona clay, 2 to 5 percent slopes	19	IIIe-4	4c2c
OrB	Ora loam, 2 to 5 percent slopes	20	IIe-3	3o7
OrC	Ora loam, 5 to 8 percent slopes	20	IIIe-5	3o7
OrC3	Ora loam, 5 to 8 percent slopes, severely eroded	20	IVe-1	3o7
OrD3	Ora loam, 8 to 12 percent slopes, severely eroded	20	VIe-2	3o7
PnA	Prentiss fine sandy loam, 0 to 2 percent slopes	21	IIw-1	2o7
PnB	Prentiss fine sandy loam, 2 to 5 percent slopes	21	IIe-3	2o7
Rm	Robinsonville and Marietta soils	22		
	Robinsonville part	--	IIw-3	1o4
	Marietta part	--	IIw-3	1w5
Ro	Rosebloom fine sandy loam, sandy variant	23	IIIw-4	2w9
Rs	Rosebloom silt loam	22	IIIw-4	2w9
RuB	Ruston fine sandy loam, 2 to 5 percent slopes	23	IIe-2	3o1
RuC2	Ruston fine sandy loam, 5 to 8 percent slopes, eroded	23	IIIe-2	3o1
RuD3	Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded	23	VIe-1	3o1
SwD	Sweatman loam, 8 to 12 percent slopes	24	VIe-6	3c2
SwF	Sweatman loam, 12 to 35 percent slopes	24	VIIe-3	3c2
ThB	Tippah silt loam, 2 to 5 percent slopes	25	IIe-4	3o7
ThC	Tippah silt loam, 5 to 8 percent slopes	25	IIIe-6	3o7
Tr	Trebloc loam	26	IVw-1	2w9
Un	Una silty clay loam	26	IIIw-4	2w6
Ur	Urbo silty clay	27	IIw-5	1w8
WcB	Wilcox silt loam, 2 to 5 percent slopes	27	IIIe-7	3c2
WlC	Wilcox silty clay loam, 5 to 8 percent slopes	27	IVe-2	3c2
WlE2	Wilcox silty clay loam, 8 to 17 percent slopes, eroded	28	VIIe-2	3c2

Accessibility Statement

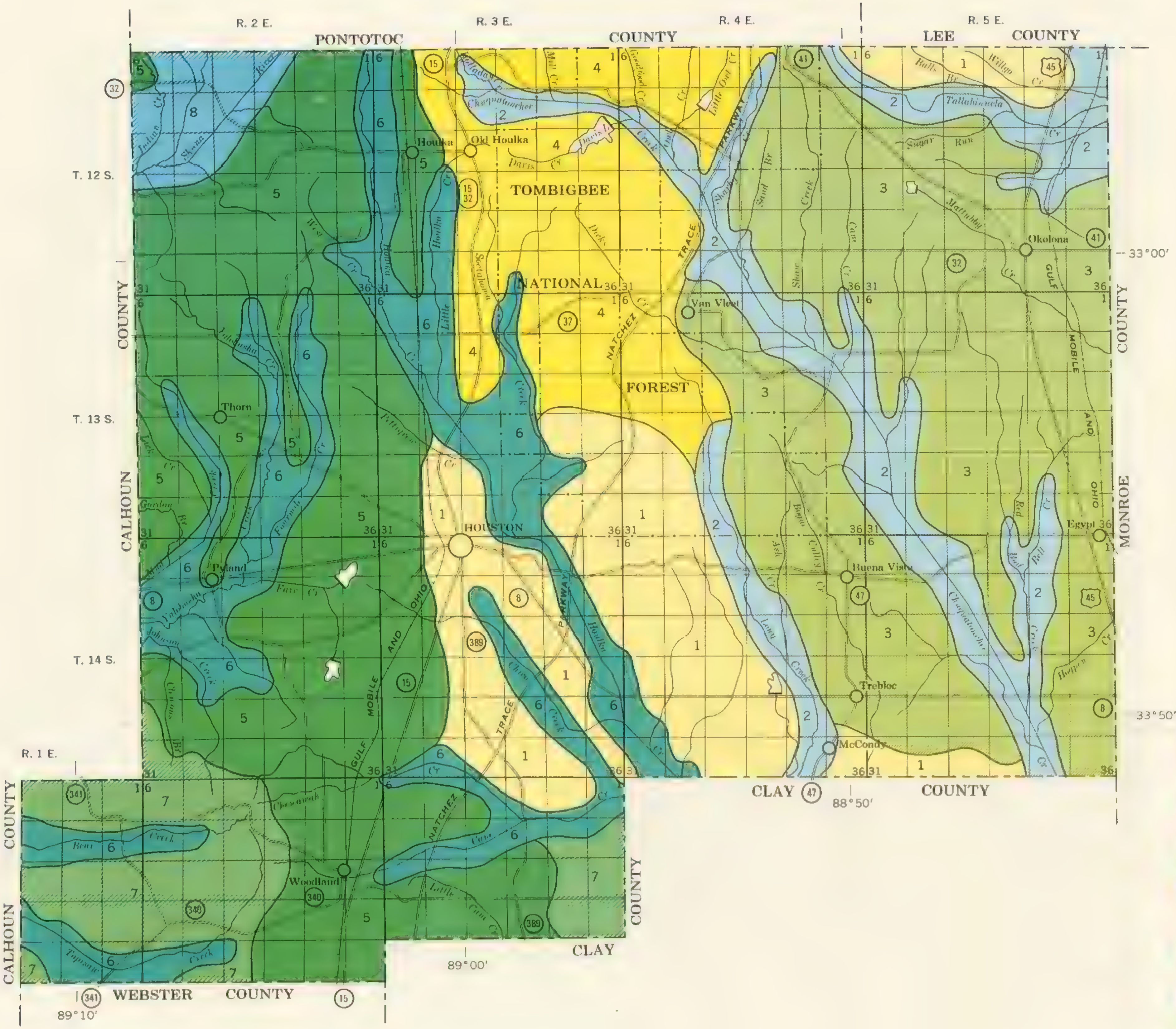
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
FOREST SERVICE
MISSISSIPPI AGRICULTURAL AND FORESTRY EXPERIMENT STATION

GENERAL SOIL MAP

CHICKASAW COUNTY, MISSISSIPPI

Scale 1:190,080

1 0 1 2 3 4 Miles



Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

SOIL ASSOCIATIONS

1 Ora-Prentiss-Brewton association: Moderately well drained and somewhat poorly drained, level to sloping soils that have a loamy subsoil and a fragipan; on uplands

2 Leeper-Belden-Una association: Somewhat poorly drained and poorly drained, level soils that have a clayey and loamy subsoil; on flood plains, mainly in the eastern part of the county

3 Kipling-Brooksville-Okolona association: Somewhat poorly drained and well-drained, level to sloping soils that are clayey below the surface layer; on uplands

4 Cahaba-Atwood-Ora association: Well drained and moderately well drained, level to steep soils that have a loamy subsoil; on uplands

5 Adaton-Falkner-Mayhew association: Poorly drained and somewhat poorly drained, level soils that have a loamy and clayey subsoil; on uplands

6 Arkabutla-Marietta association: Somewhat poorly drained and moderately well drained, level soils that have a loamy subsoil; on flood plains

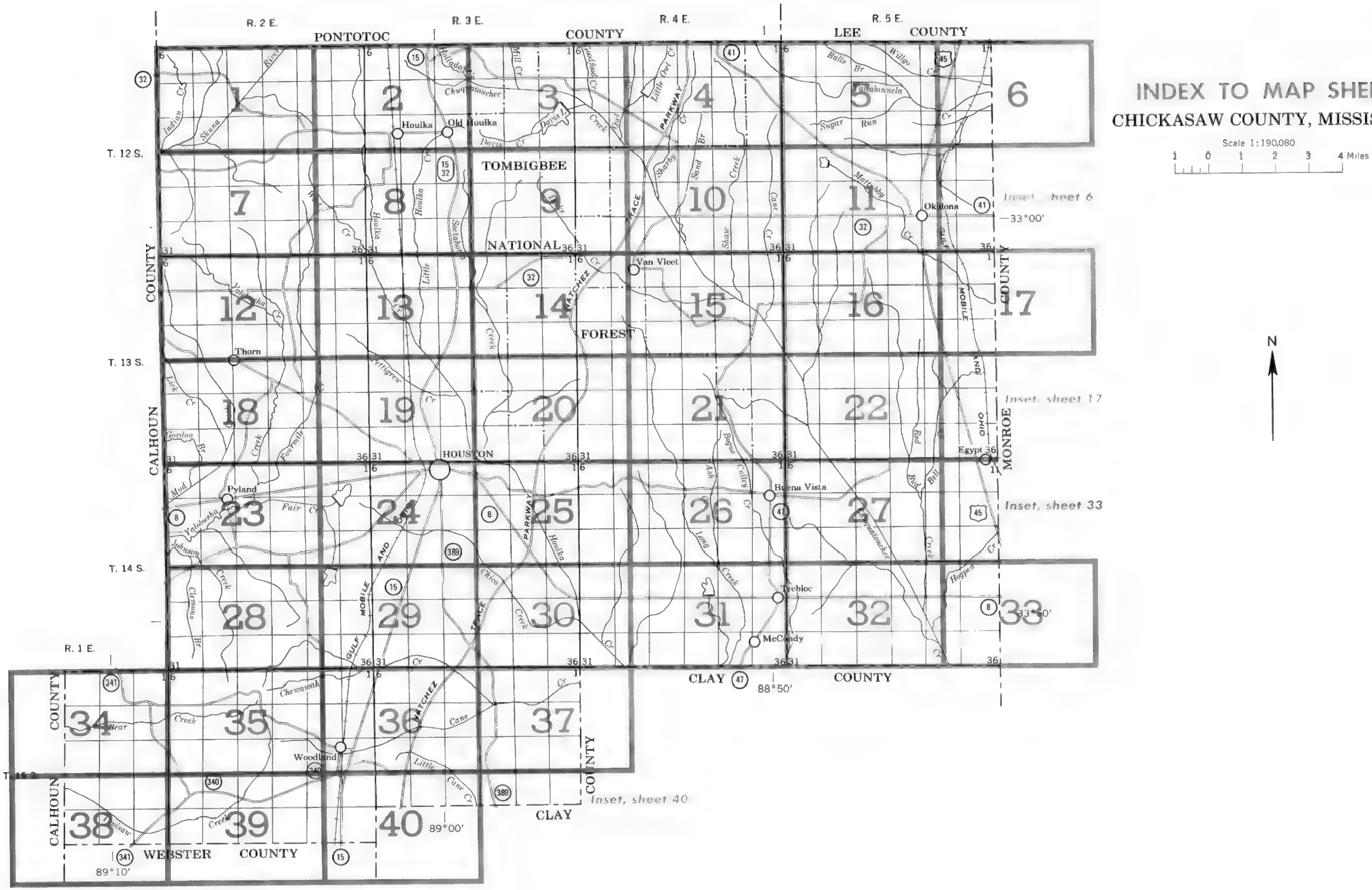
7 Wilcox-Sweatman-Tippah association: Well-drained to somewhat poorly drained, gently sloping to steep soils that have a clayey and loamy subsoil; on uplands

8 Urbo-Rosebloom association: Somewhat poorly drained and poorly drained level soils that have a clayey and loamy subsoil; on flood plains in the northwestern part of the county

Compiled 1972

INDEX TO MAP SHEETS
CHICKASAW COUNTY, MISSISSIPPI

Scale 1:190,080



CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads
- Divided
- Good motor
- Poor motor
- Trail

Highway markers
- National Interstate
- U. S.
- State or county

Railroads
- Single track
- Multiple track
- Abandoned

Bridges and crossings
- Road
- Trail
- Railroad
- Ferry — FY
- Ford — FORD
- Grade
- R. R. over
- R. R. under

Buildings
- School
- Church

Mine and quarry

Gravel pit

Power line

Pipeline

Cemetery

Dams

Levee

Tanks

Well, oil or gas

Forest fire or lookout station

Cotton gin

Located object

BOUNDARIES

- National or state
- County
- Minor civil division
- Reservation
- Land grant
- Small park, cemetery, airport
- Land survey division corners

DRAINAGE

Streams, double-line
- Perennial
- Intermittent

Streams, single-line
- Perennial
- Intermittent
  - Crossable with tillage implements
  - Not crossable with tillage implements
  - Unclassified

Canals and ditches

Lakes and ponds
- Perennial — water, w
- Intermittent — int

Spring

Marsh or swamp

Wet spot

Drainage end or alluvial fan

RELIEF

Escarpments
- Bedrock
- Other

Short steep slope

Prominent peak

Depressions (Large, Small)
- Crossable with tillage implements
- Not crossable with tillage implements
- Contains water most of the time

SOIL SURVEY DATA

Soil boundary and symbol — Dx

Gravel

Stoniness
- Stony
- Very stony

Rock outcrops

Chert fragments

Clay spot

Sand spot

Gumbo or scabby spot

Made land

Severely eroded spot

Blowout, wind erosion

Gully

Sand pit — S.P.

SOIL LEGEND

The first capital letter is the initial one of the soil name. A second capital letter, A, B, C, D, E, or F, shows the slope. Symbols without a slope letter are those of nearly level soils. The number, 2 or 3, in a symbol indicates that the soil is eroded or severely eroded.

SYMBOL	NAME
Ad	Adaton silt loam
Ar	Arkabutla silt loam
AtA	Atwood silt loam, 0 to 2 percent slopes
AtB	Atwood silt loam, 2 to 5 percent slopes
AtC2	Atwood silt loam, 5 to 8 percent slopes, eroded
AtD3	Atwood silt loam, 8 to 17 percent slopes, severely eroded
Be	Belden silty clay loam
Br	Brewton fine sandy loam
BvA	Brooksville silty clay, 0 to 2 percent slopes
BvB	Brooksville silty clay, 2 to 5 percent slopes
CaF	Cahaba fine sandy loam, 12 to 35 percent slopes
Ct	Catalpa silty clay loam
DeC3	Demopolis silty clay loam, 2 to 8 percent slopes, severely eroded
DkE3	Demopolis-Kipling complex, 8 to 25 percent slopes, severely eroded
Fa	Falkner silt loam
GdE	Gullied land-Demopolis complex, 8 to 25 percent slopes
GrE	Gullied land-Ruston complex, 5 to 30 percent slopes
KlA	Kipling silt loam, 0 to 2 percent slopes
KlB2	Kipling silt loam, 2 to 5 percent slopes, eroded
KlC2	Kipling silt loam, 5 to 8 percent slopes, eroded
KpB3	Kipling silty clay loam, 2 to 5 percent slopes, severely eroded
KsD3	Kipling silty clay, 5 to 12 percent slopes, severely eroded
Le	Leeper silty clay loam
Ma	Marietta fine sandy loam
Mh	Mashulaville loam
Mw	Mayhew silt loam
OkA	Okolona clay, 0 to 2 percent slopes
OkB	Okolona clay, 2 to 5 percent slopes
OrB	Ora loam, 2 to 5 percent slopes
OrC	Ora loam, 5 to 8 percent slopes
OrC3	Ora loam, 5 to 8 percent slopes, severely eroded
OrD3	Ora loam, 8 to 12 percent slopes, severely eroded
PnA	Prentiss fine sandy loam, 0 to 2 percent slopes
PnB	Prentiss fine sandy loam, 2 to 5 percent slopes
Rm	Robinsonville and Marietta soils
Ro	Rosebloom fine sandy loam, sandy variant
Rs	Rosebloom silt loam
RuB	Ruston fine sandy loam, 2 to 5 percent slopes
RuC2	Ruston fine sandy loam, 5 to 8 percent slopes, eroded
RuD3	Ruston fine sandy loam, 8 to 12 percent slopes, severely eroded
SwD	Sweatman loam, 8 to 12 percent slopes
SwF	Sweatman loam, 12 to 35 percent slopes
ThB	Tippah silt loam, 2 to 5 percent slopes
ThC	Tippah silt loam, 5 to 8 percent slopes
Tr	Trebloc loam
Un	Una silty clay loam
Ur	Urbo silty clay
WcB	Wilcox silt loam, 2 to 5 percent slopes
WlC	Wilcox silty clay loam, 5 to 8 percent slopes
WlE2	Wilcox silty clay loam, 8 to 17 percent slopes, eroded

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 1

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

Land division corners are approximately positioned on this map

CHICKASAW COUNTY, MISSISSIPPI NO. 1

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 10

CHICKASAW COUNTY, MISSISSIPPI NO. 10

Land division corners are approximately positioned on this map

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 11

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 12

CHICKASAW COUNTY, MISSISSIPPI NO. 12

Land division corners are approximately positioned on this map

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

N

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone

Land division corners are approximately positioned on this map

CHICKASAW COUNTY, MISSISSIPPI NO. 13

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 14

CHICKASAW COUNTY, MISSISSIPPI NO. 14

Land division corners are approximately positioned on this map.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.
Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.
Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 15

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 16

CHICKASAW COUNTY, MISSISSIPPI NO. 16

Land division corners are approximately positioned on this map.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.
Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.
Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 17

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 18

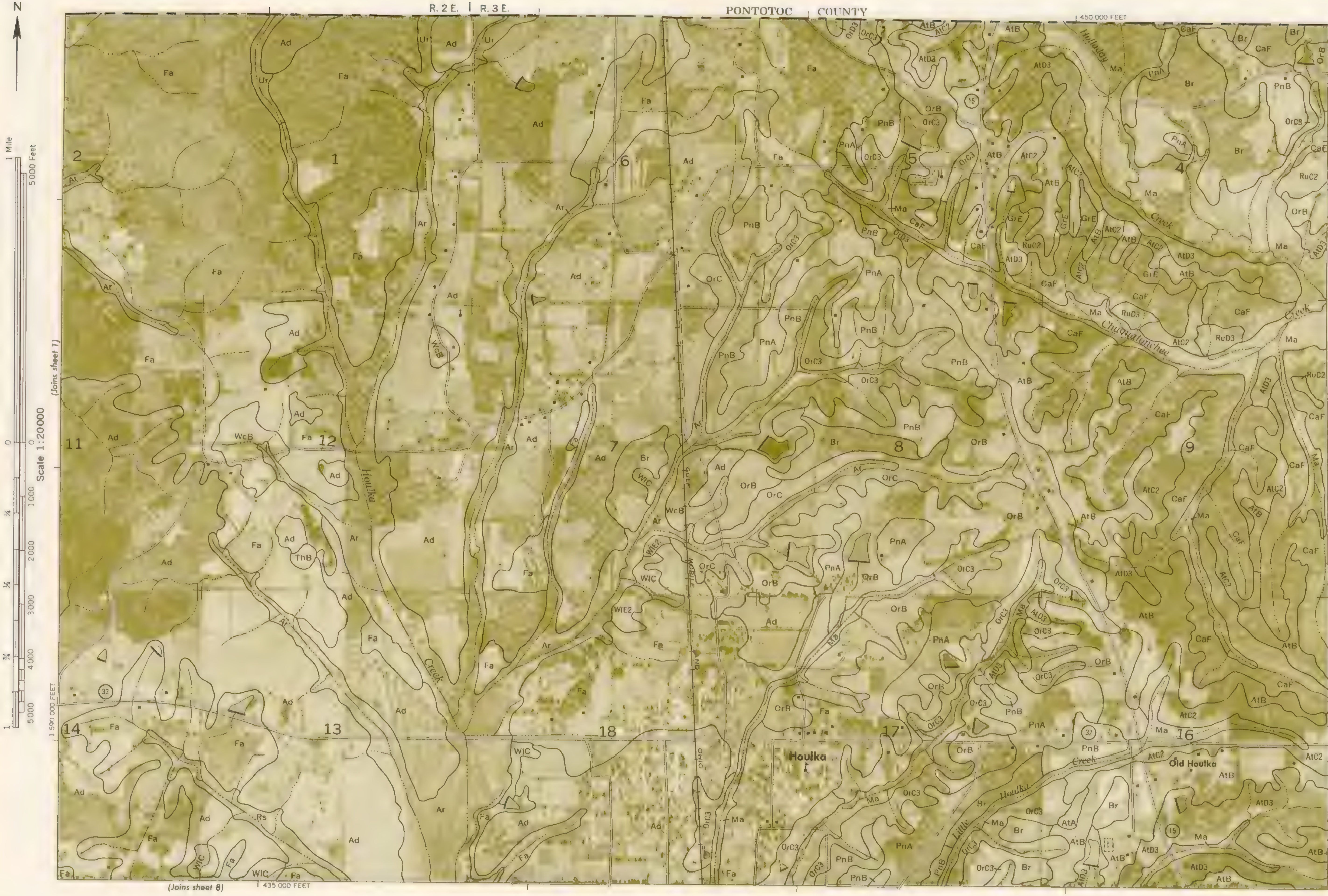
CHICKASAW COUNTY, MISSISSIPPI NO. 18

Land division corners are approximately positioned on this map

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agriculture and Forestry Experiment Station

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.
Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.
Land division corners are approximately positioned on this map.
CHICKASAW COUNTY, MISSISSIPPI NO. 19



CHICKASAW COUNTY, MISSISSIPPI NO. 2

Land division corners are approximately positioned on this map

Photobase from 1970 aerial photography. Positions of 5 000 foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 20

CHICKASAW COUNTY, MISSISSIPPI NO. 20

Land division corners are approximately positioned on this map

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 21

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 22

CHICKASAW COUNTY, MISSISSIPPI NO. 22

Land division corners are approximately positioned on this map

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.
Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.
Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 23

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 24

CHICKASAW COUNTY, MISSISSIPPI NO. 24

Land division corners are approximately positioned on this map

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

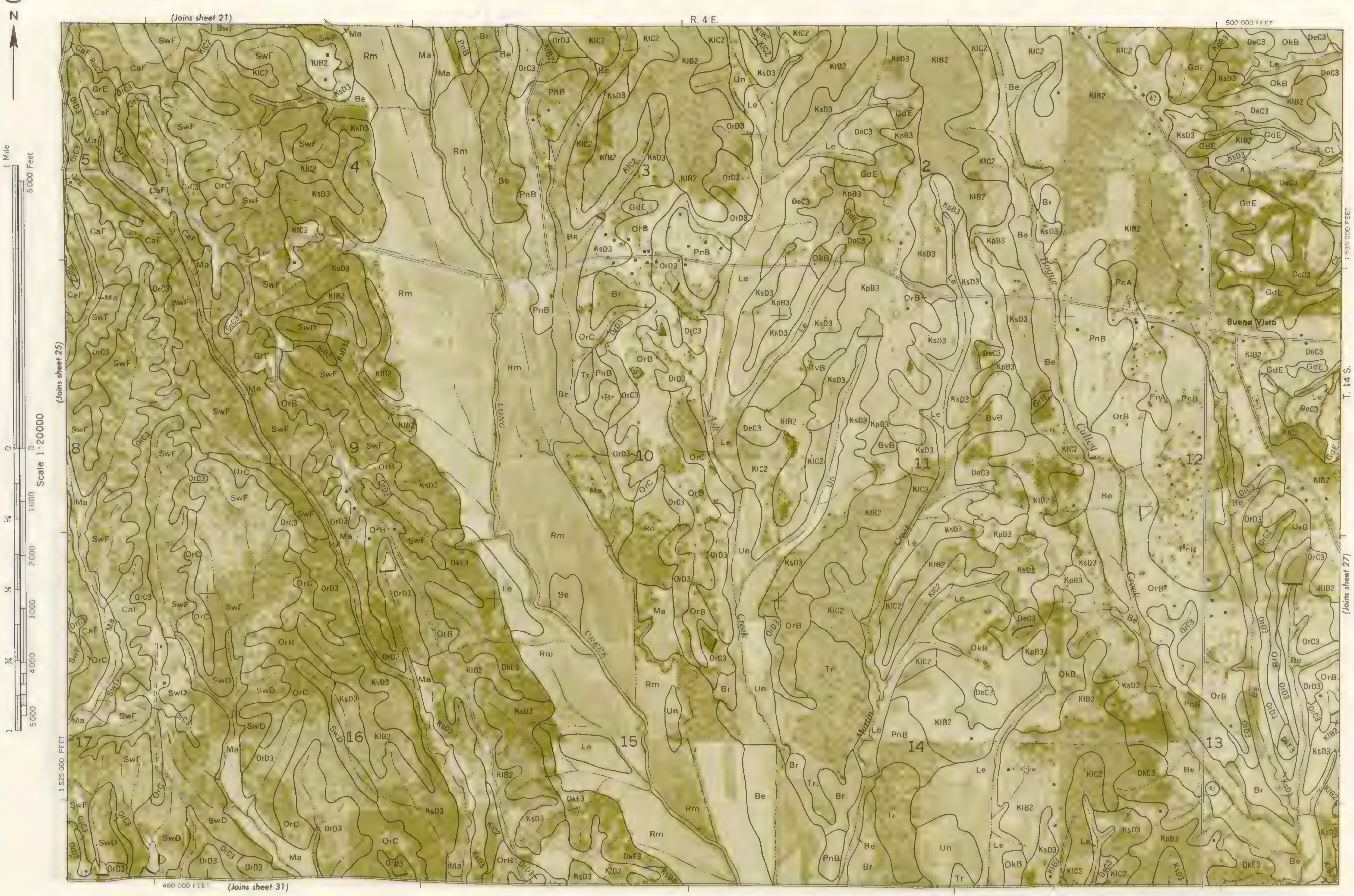
This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 25

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 26



CHICKASAW COUNTY, MISSISSIPPI NO. 26

Land division corners are approximately positioned on this map

Photobase from 1970 aerial photography. Positions of 5,000 foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 27

CHICKASAW COUNTY, MISSISSIPPI NO. 28

Land division corners are approximately positioned on this map

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station

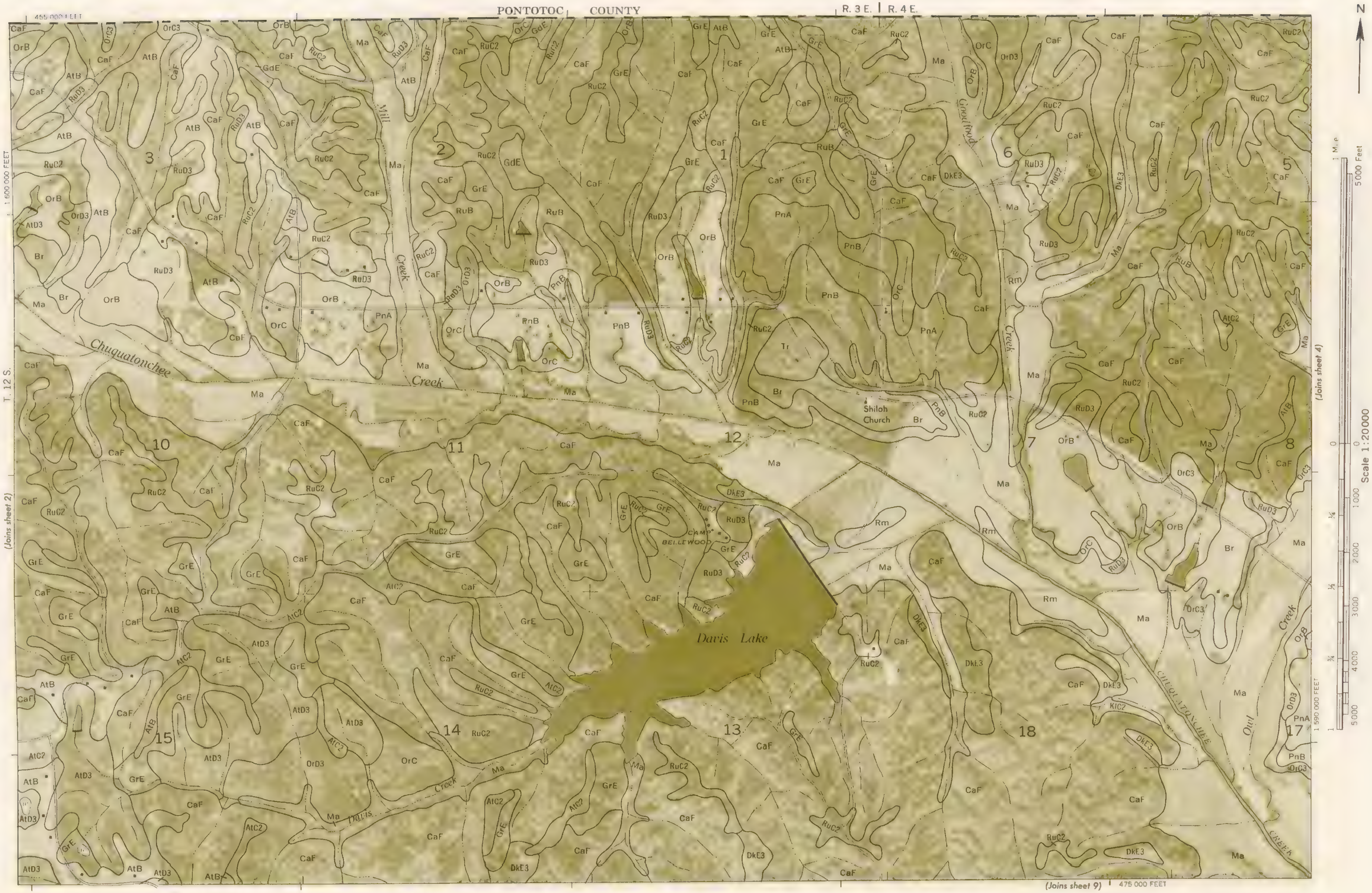
29

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 29



This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service and the Mississippi Agricultural and Forestry Experiment Station.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 3

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 30

CHICKASAW COUNTY, MISSISSIPPI NO. 30

Land division corners are approximately positioned on this map.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 32

Land division corners are approximately positioned on this map

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.
Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.
Land division corners are approximately positioned on this map.
CHICKASAW COUNTY, MISSISSIPPI NO. 33

CHICKASAW COUNTY, MISSISSIPPI NO. 34

Land division corners are approximately positioned on this map

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system east zone

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station

35

N

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service and the Mississippi Agricultural and Forestry Experiment Station.
Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.
Land division corners are approximate, positioned on this map.
CHICKASAW COUNTY, MISSISSIPPI NO. 35

1 Mile
5000 Feet
0
1000
2000
3000
4000
5000
Scale 1:20000

CHICKASAW COUNTY, MISSISSIPPI NO. 36

Land division corners are approximately positioned on this map.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.
Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.
Land division corners are approximately positioned on this map.
CHICKASAW COUNTY, MISSISSIPPI NO. 37

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 38

N

1 Mile
5000 Feet
0
Scale 1:20000
0 1000 2000 3000 4000 5000
¼ ½ ¾ 1

CHICKASAW COUNTY, MISSISSIPPI NO. 38

Land division corners are approximately positioned on this map.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.
Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.
Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 39

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 4

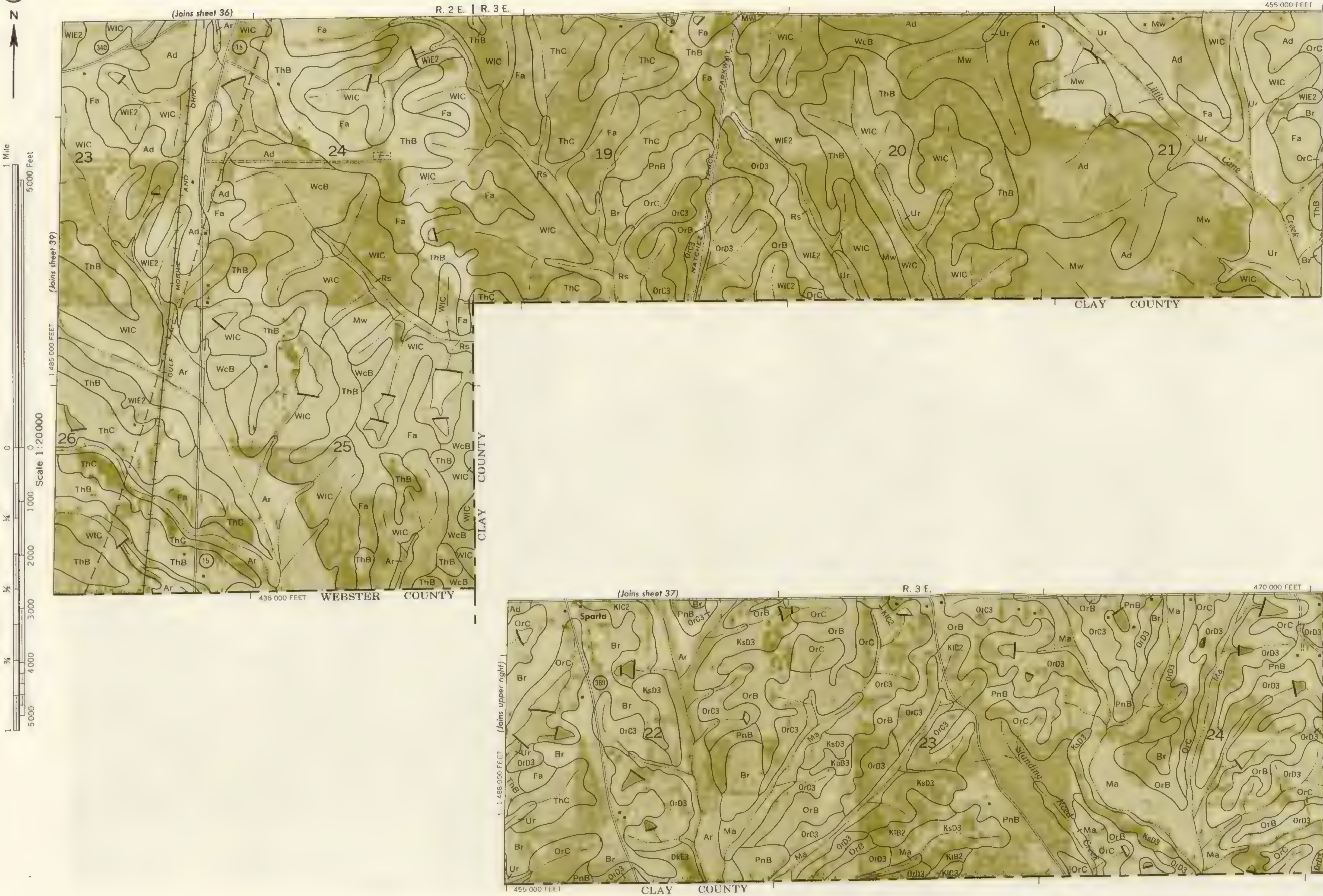
CHICKASAW COUNTY, MISSISSIPPI NO. 4

Land division corners are approximately positioned on this map

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 40



3000 AND 5000 FOOT GRID TICK

CHICKASAW COUNTY, MISSISSIPPI NO. 40

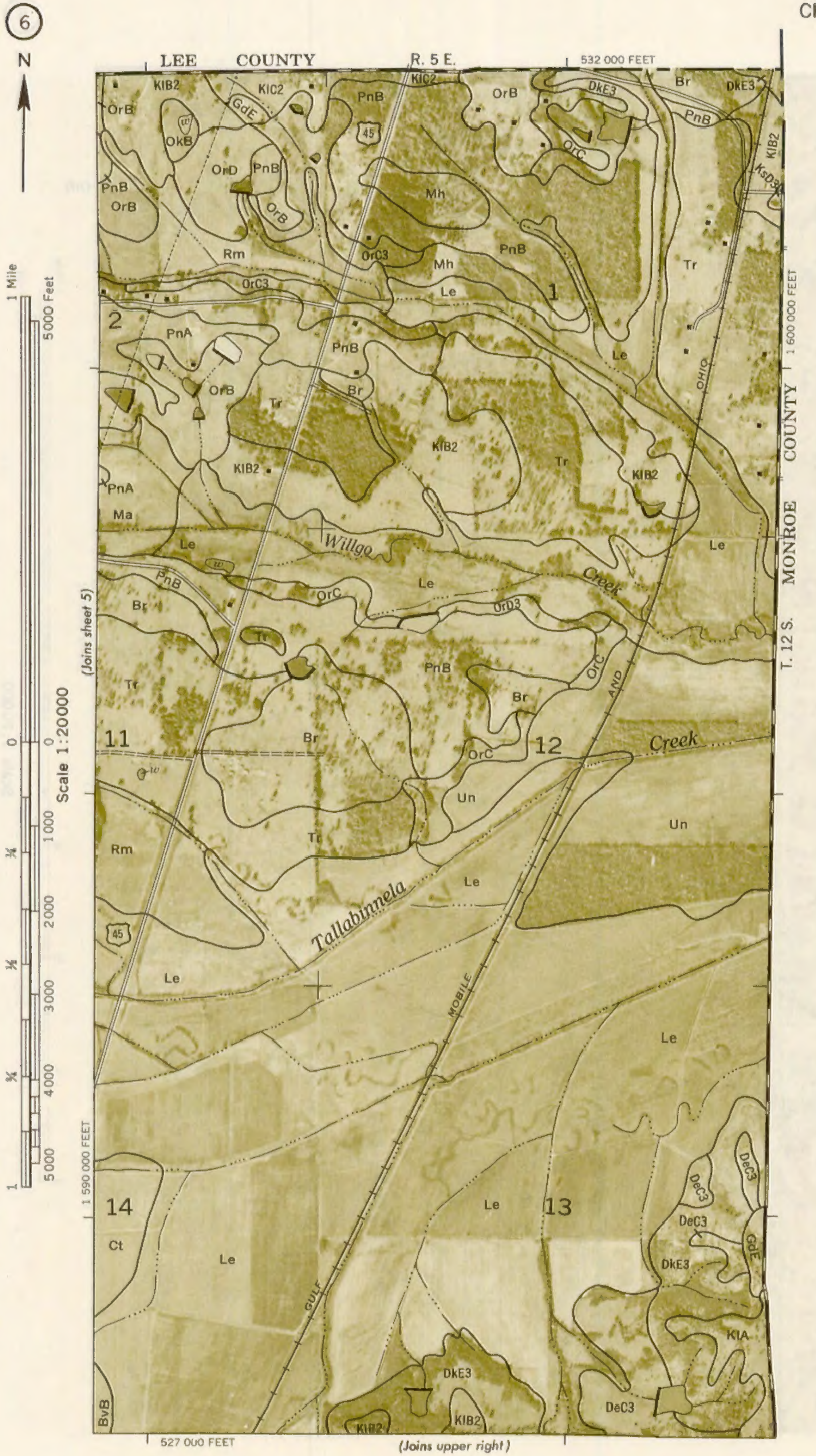
Land division corners are approximately positioned on this map

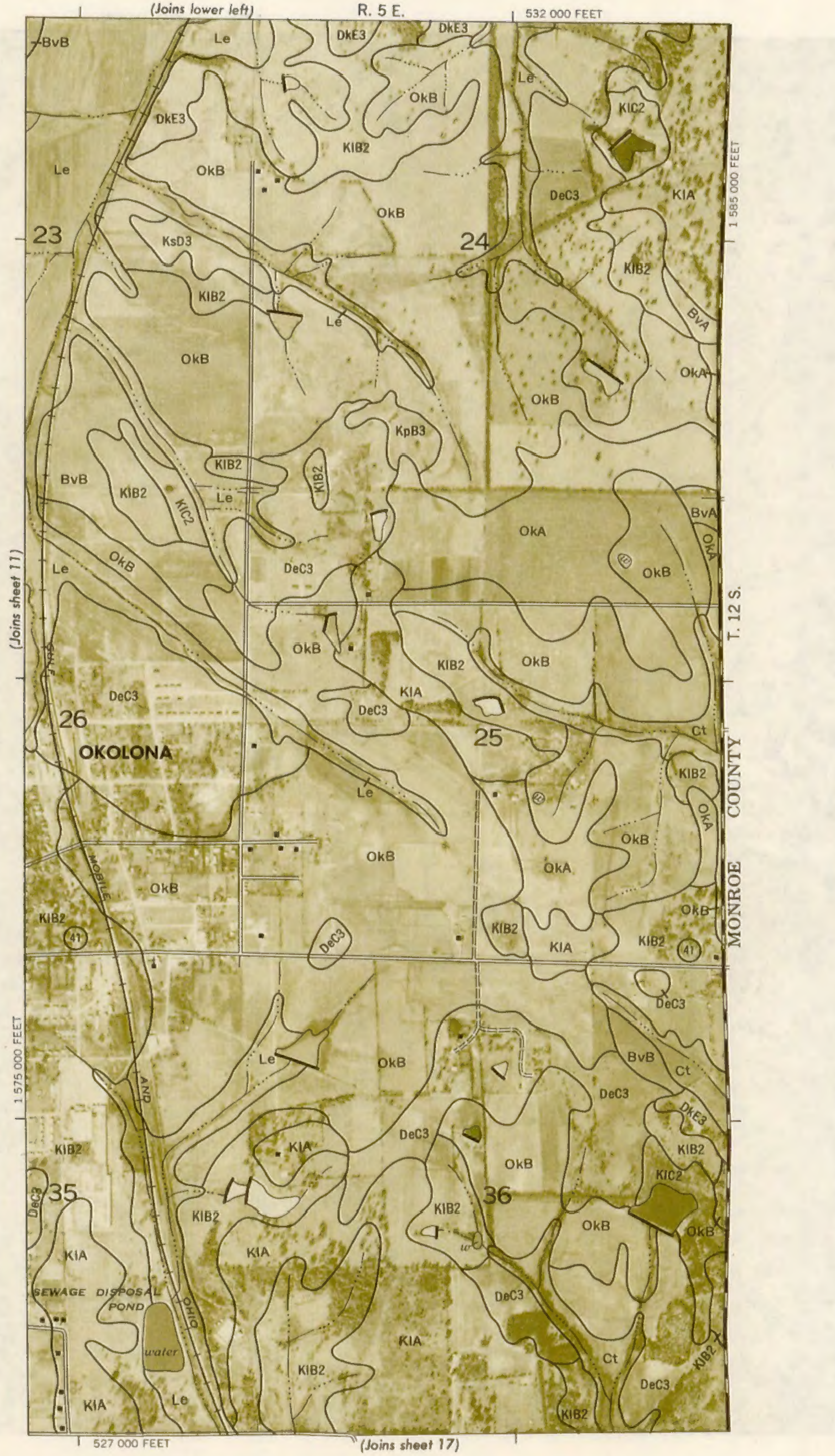
Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system east zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.
Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.
Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 5



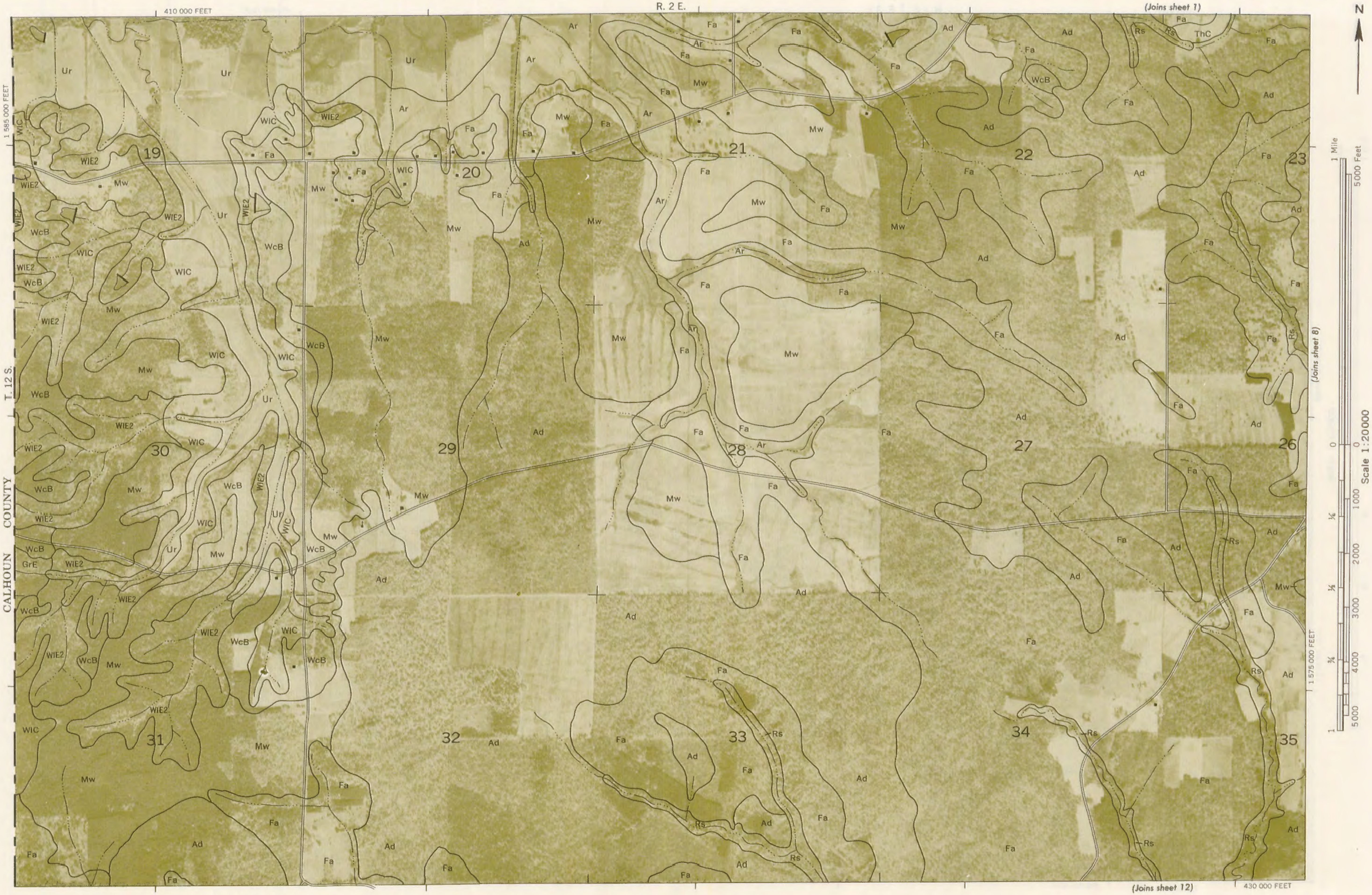


CHICKASAW COUNTY, MISSISSIPPI NO. 6

Land division corners are approximately positioned on this map.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

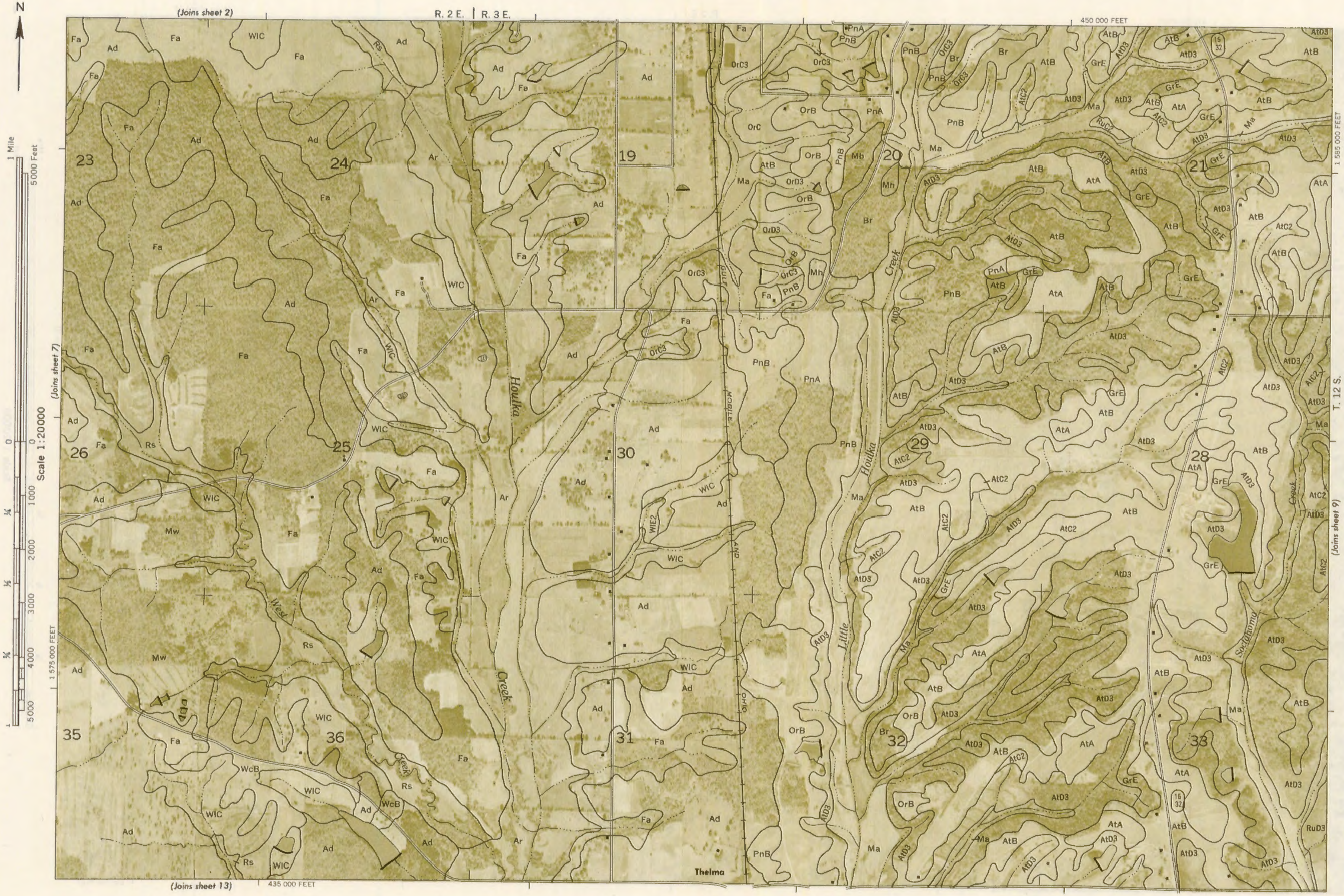
This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.



This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.
Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.
Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 7

CHICKASAW COUNTY, MISSISSIPPI — SHEET NUMBER 8

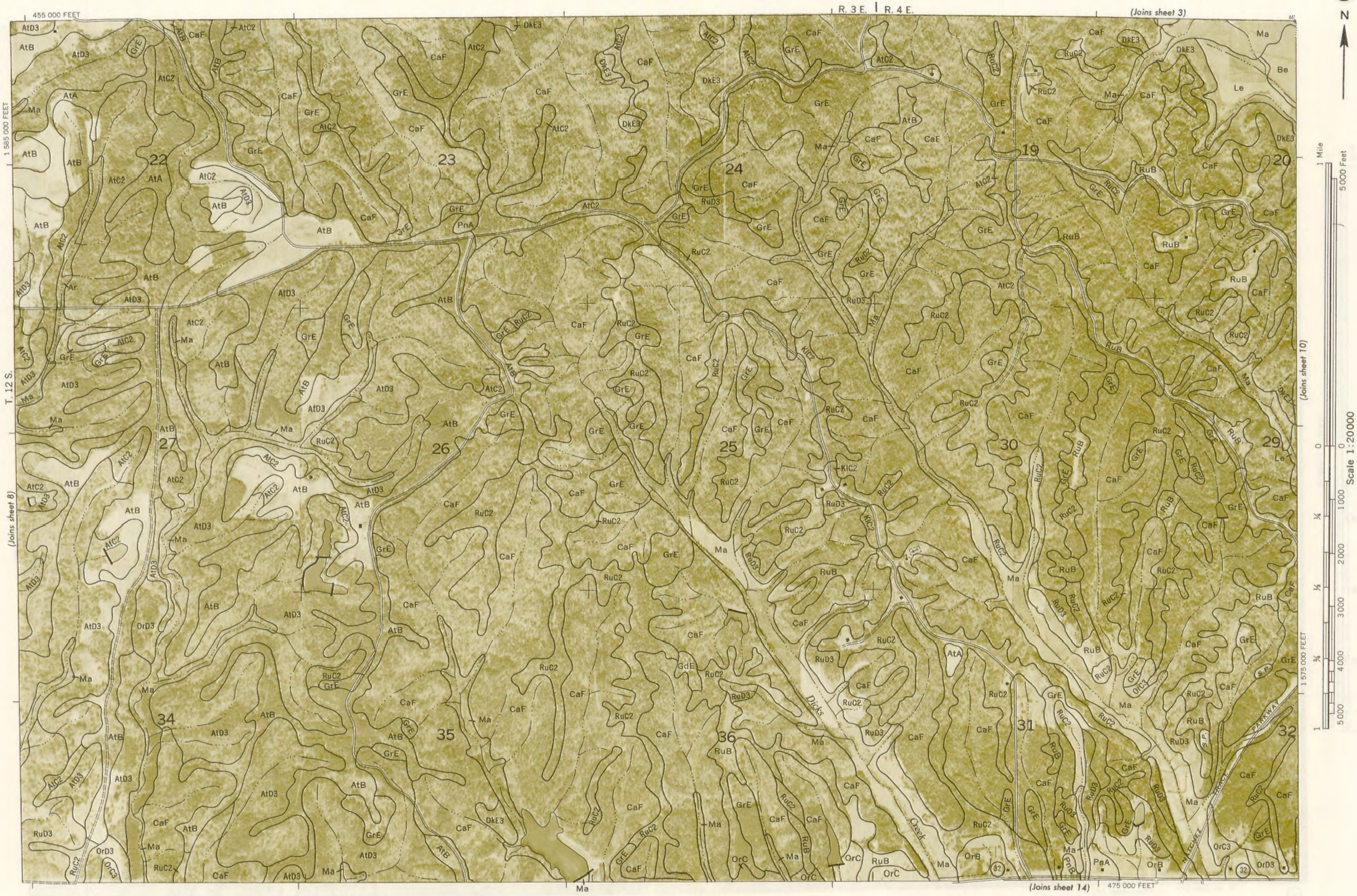


CHICKASAW COUNTY, MISSISSIPPI NO. 8

Land division corners are approximately positioned on this map.

Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.

This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.



This map is one of a set compiled in 1972 as part of a soil survey by the United States Department of Agriculture, Soil Conservation Service, Forest Service, and the Mississippi Agricultural and Forestry Experiment Station.
Photobase from 1970 aerial photography. Positions of 5,000-foot grid ticks are approximate and based on the Mississippi coordinate system, east zone.
Land division corners are approximately positioned on this map.

CHICKASAW COUNTY, MISSISSIPPI NO. 9